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MID-PACIFIC MAGAZINE

July-September, 1936

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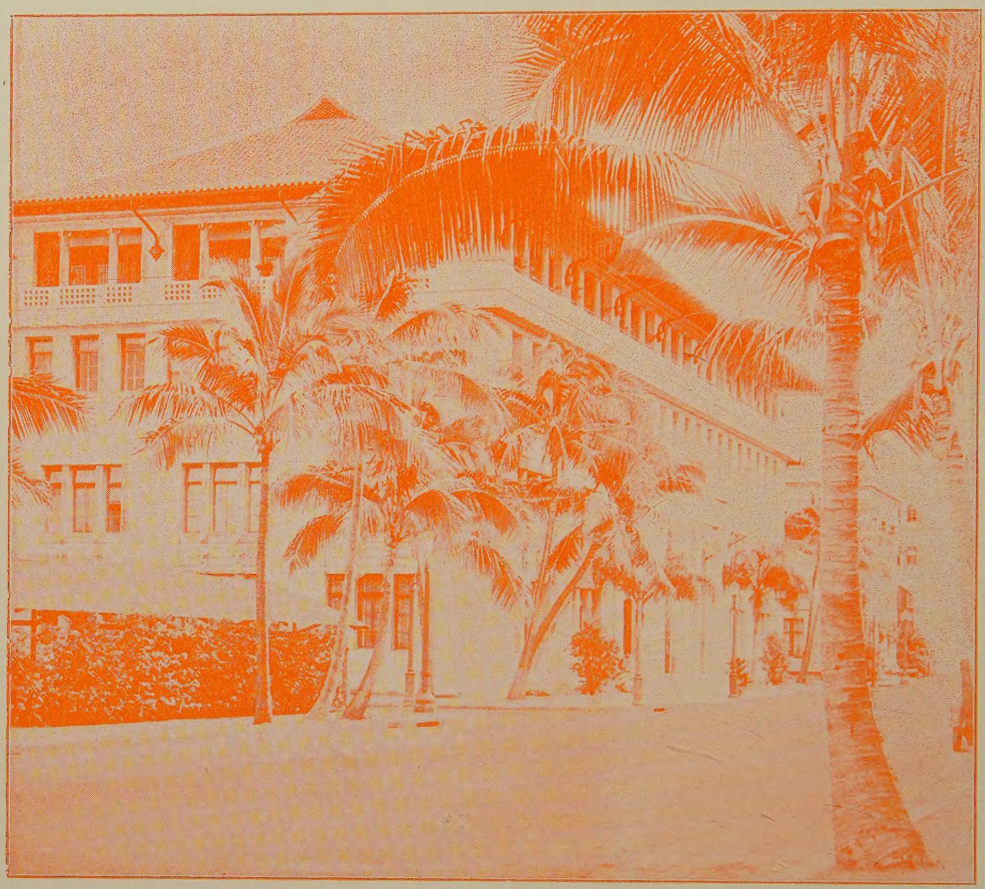

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The Mid-Pacific Magazine

of the

PAN-PACIFIC UNION

GEORGE MELLEN, Editor

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The New Oregon Trail

A Symposium

Oh, Susanna; don't you cry for me!
I'm going off to Oregon with my banjo on my knee.

How Oregon Became American

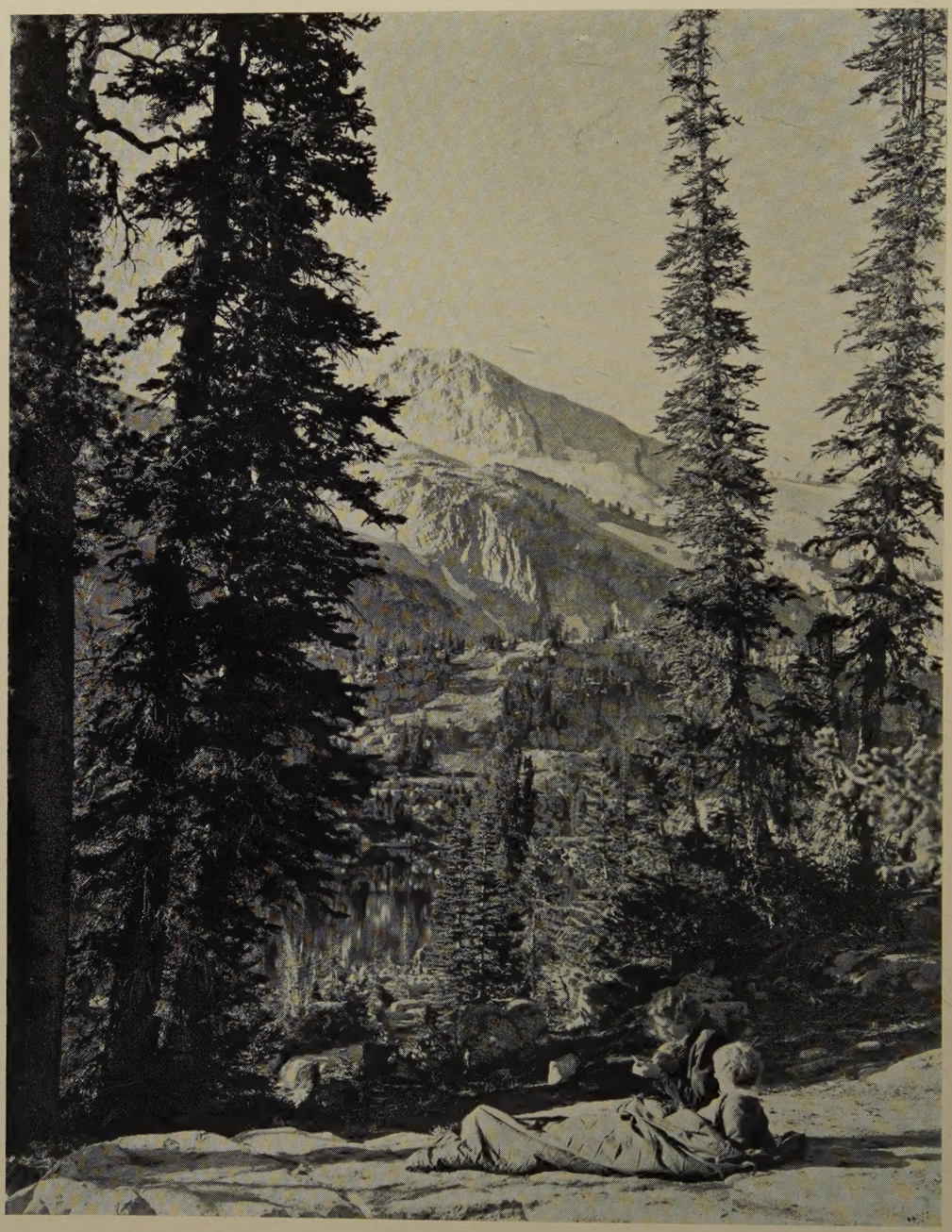
OREGON—a word of magic; the name of a new land of opportunity, of hope, of happiness. Those who had seen the fabled country returned with wondrous tales of fertile valleys, vast sweeps of forests, kindly climate, rivers and lakes fed by mountain snows, game and fish enough for easy sustenance. The confirmation of these stories started the covered wagons rumbling on to Oregon.

Spain might be the owner of Washington, Oregon and California today and Spanish the official language had the early Spanish navigator, Bartolomé Ferrelo, been more perspicacious when he sailed up the Pacific coast in 1543. He had his eyes open for a land that looked more like quick riches than the uninhabited stretch of country he could see—no palaces, no gold. His reports inspired no exploratory parties from Spain, at that time engrossed in the profitable Far East trade.

In 1579, Sir Francis Drake discovered the coast, named the land New Albion and claimed it for Queen Elizabeth of England. Spain's De Fuca in 1592, Sebastian Vizcaino and Martin Aguilar in 1603, and Admiral Fonte in 1640, sailed up the coast and mapped the country to the 55th parallel but made no attempt to explore the hinterland nor establish colonies. Then fearing that either England or Russia might beat them to it, Spain sent Juan Perez in 1774 and Bruno Heceta in 1775 to sail up and down the entire Oregon coast. Heceta took possession of all land up to the 54th parallel for Spain, but did no more than Drake had done nearly 200 years before.

Captain James Cook was looking for the northwest passage in 1778 when he discovered the Columbia River and sailed 80 miles upstream before he became convinced that the river would not take him into the Atlantic Ocean.

After the Revolutionary War, the American merchant marine extended its field of operations everywhere, even up



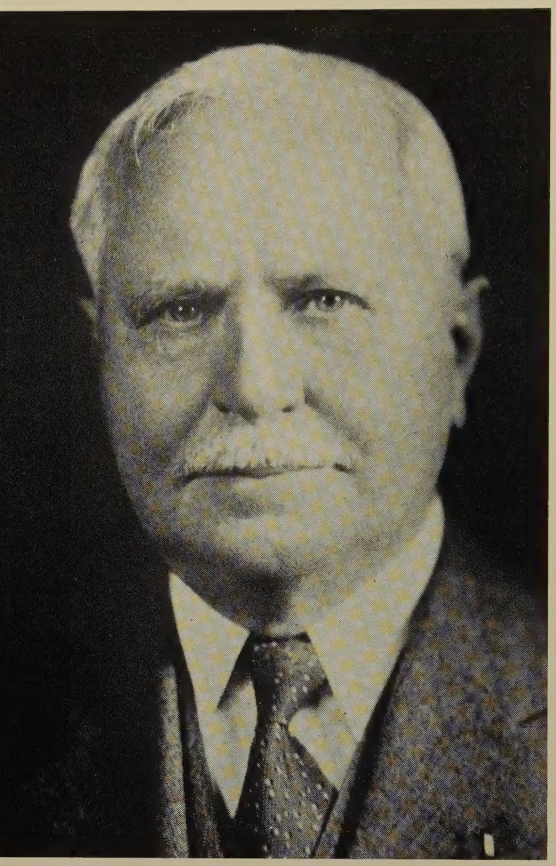
On the old Oregon Trail, the first explorers, trappers and pioneer settlers passed the Wallowa Mountains of northeastern Oregon, now a magnificent recreational area. One of the young campers deems it suitable to apply a touch of make-up before facing this view of Eagle Cap peak, with Moccasin Lake in the foreground.—Photo from Oregon State Highway Commission. **Wallowa Lake (opposite page), in the Switzerland of America, favorite spot of Joseph, chief of the Nez Perces. The hereditary home of the tribe lay in the Valley-of-Winding-Waters, with its shining lakes and lofty peaks. Reluctantly they gave it up when the white man forced them to move.**—Ager photo.

the Pacific Coast to buy fur from Indian trappers and sell it in China. New England merchants sent Captain Robert Gray, with sea letters from George Washington, to explore the region. Gray sailed up the Columbia River, in 1792, named it after his ship, and claimed all the territory drained by it for the United States.

The next year the North West Company, British fur traders, explored the land; by 1808 had several trading posts in Canada, and in 1811 built a few south of the 49th parallel, the present boundary line between Canada and the United States.

When France sold Louisiana to the United States, she very generously included in the purchase the Oregon Territory to which she lay claim by virtue of the voyages of French navigator Laperouse, 1786. Thomas Jefferson lost no time in sending out a party of explorers under Captains Meriwether Lewis and William Clark to explore his new acquisitions. Congress appropriated $2500 for the purpose and never was money better spent, for it gave the United States a strong claim to the new territory. In 1806, the party returned with a glowing story of the magnificent country they had explored.

However rosy the prospects in Oregon, the trek to the new country did not begin immediately. First of all, there was the vast Mississippi-Missouri Valley to be settled. Meanwhile, John Jacob Astor, intent on obtaining the fur trade, organized the Pacific Fur Trade Company and sent the sailing ship Tonquin around the Horn. The ship reached the Columbia River in 1811, and the crew erected a log fort on the present site of Astoria. During the War of 1812, the fort was sold to the North West Company who named it Fort George. It was not until 1818, after prolonged argument between Great Britain and the United States that a treaty of joint occupation was made



CHARLES H. MARTIN
Governor of Oregon

GREETING: On behalf of the people of Oregon, I extend greetings to all the readers of The Mid-Pacific Magazine and invite you to visit our state. Oregon has a definite and vital interest in Pacific affairs, in the commerce between countries touched by the Pacific, in the entire social and economic structure of this section of the world. It is interested in the problems of its neighbors, and always welcomes opportunity to know them more intimately. Likewise it is concerned in any move among the nations and peoples who are made neighbors by the vast Pacific. I appreciate this opportunity to voice my best wishes and greetings to all of you and to invite you to visit our state where our people may extend the hand of fellowship and goodwill to you.

CHARLES H. MARTIN,
Governor of Oregon.

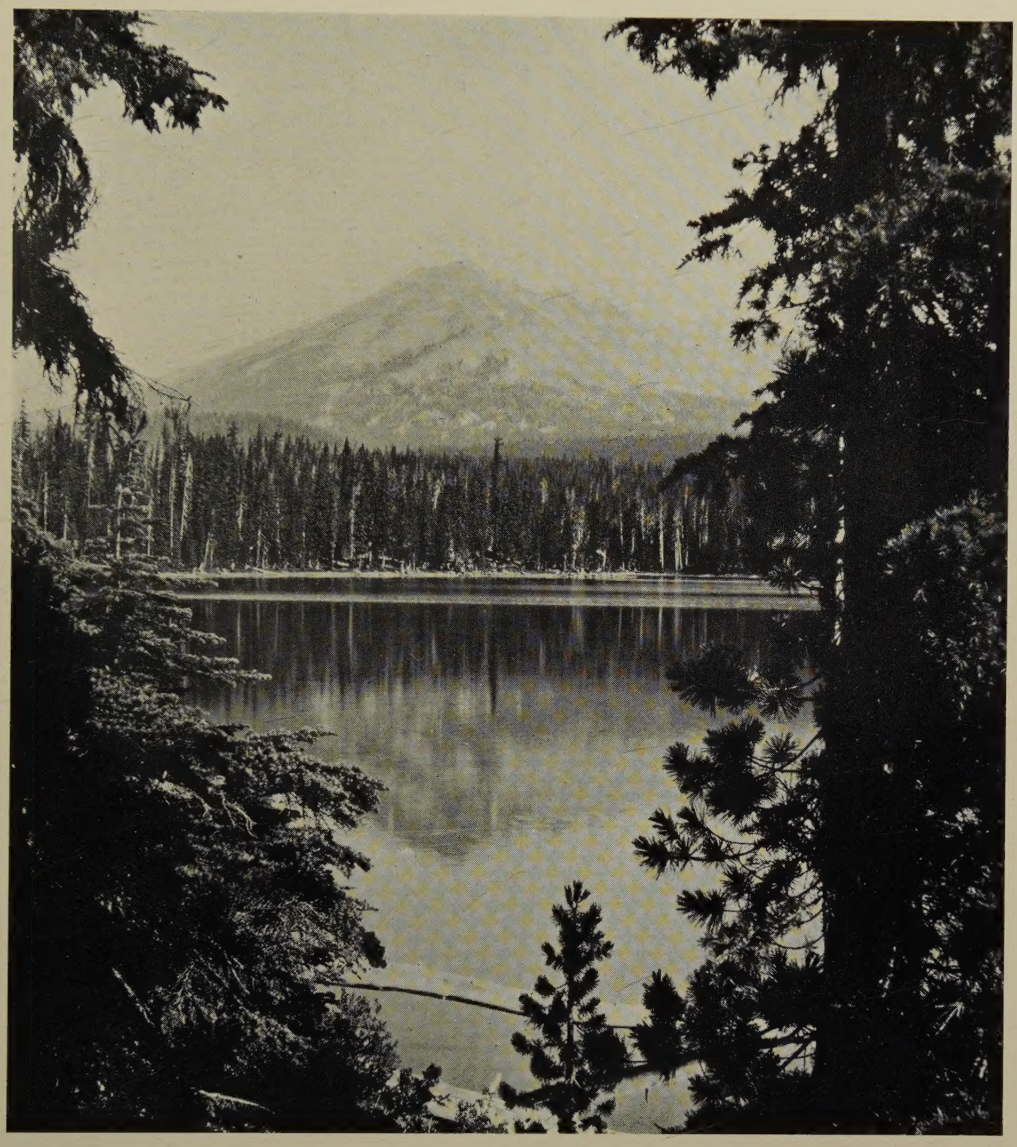
between the two countries and the American flag once more raised over the fort. The treaty was renewed in 1927.

In 1819, Spain ceded her somewhat nebulous rights to the United States, probably for good measure with the Florida Purchase. In 1824, Russia agreed to stay north of 54° 40', which left only the United States and Great Britain in the disputed territory.

Hudson's Bay Company, great fur traders of Canada, absorbed the North West Company in 1821 and laid down a policy of discouraging colonization. They sent Dr. John McLoughlin to rule the company's properties and so well did he perform his duties that he was called The Father of Oregon. He afterwards became an American citizen.

From 1834 to 1844, little groups of sturdy men and courageous women plodded and fought their way across the prairies, deserts and wilderness to the Oregon country. First of them were Rev. Jason Lee and his brother, Daniel, and others who established the Oregon Manual Labor School in the Willamette valley near the present site of Salem, and taught little Indian children the word of God. Others joined them and in 1840, there were 52 adults and 20 children. In 1847, the mission disbanded, but the missionary families were so enamored of the place that they remained as settlers.

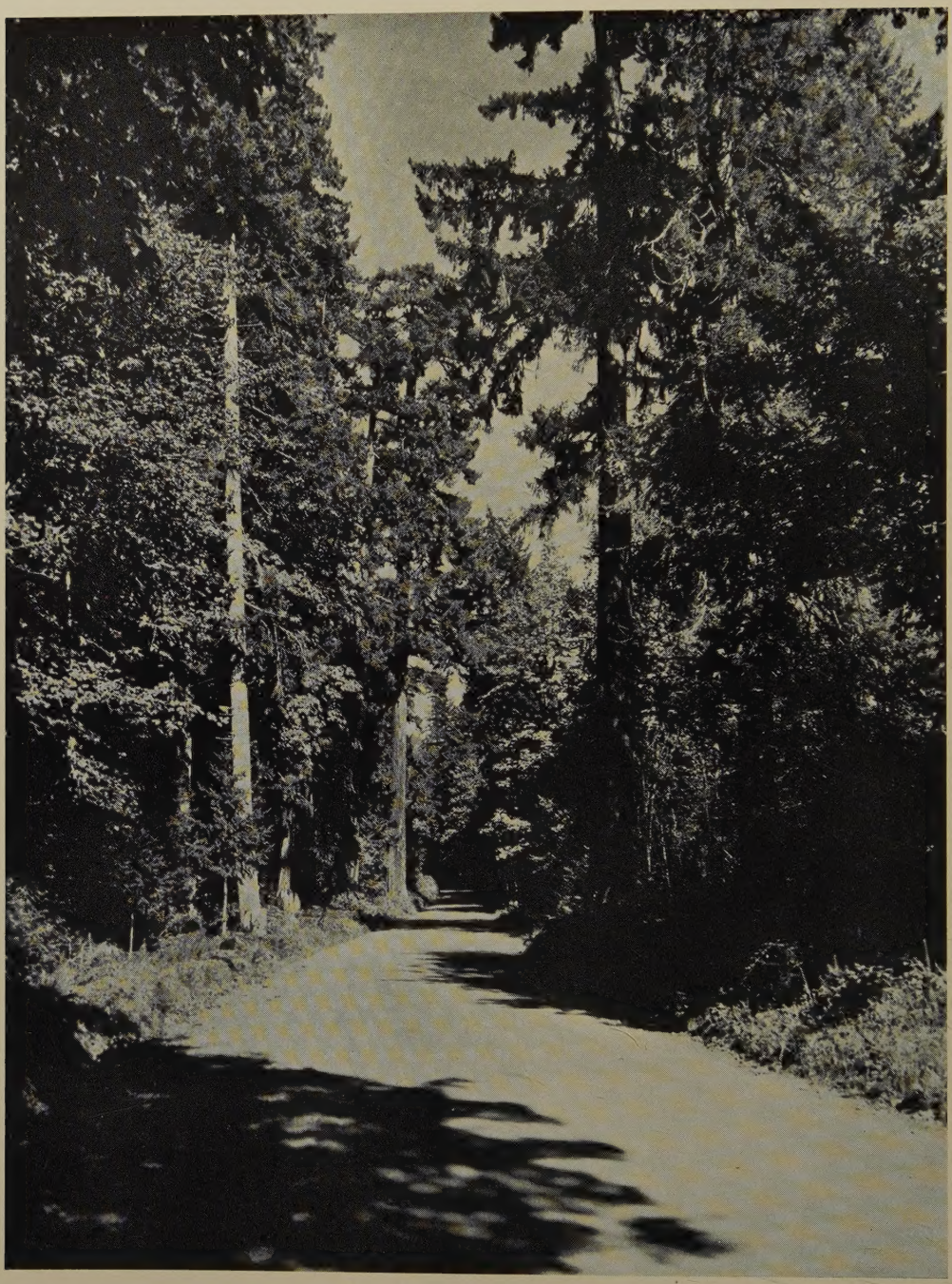
In the annual trip of 1836, the American Fur Company escorted a company of Presbyterian workers, headed by Dr. Marcus Whitman, 2300 miles from Missouri, to start a mission among the Indians of eastern Oregon. In 1837, 20 more missionaries arrived to help make Christians of the Indians and establish civilization in the Far West. It is easy to understand why schools started springing up in the clearings hewn out of the mighty forests. Today, there are few states with a better educational



Typical scene in the Cascade Mountains is this view of Summit Lake, with Diamond Peak in the background. Many of the lakes in this region have been stocked with Rainbow and Eastern Brook trout.—Sawyer photo.

system than Oregon; few, indeed, where such a large percentage of children go through high school and complete college and university courses.

On the heels of the missionaries began the great trek over the Oregon Trail, with a trickle of 50 immigrants in 1840. Ox-carts and covered wagons were loaded with things which were necessities for a people, who, like an army, cut themselves off from the base of supplies in their 2000-mile journey into a new world. They carried the prized possessions that had been part of their homes, perhaps the belongings of a Pilgrim or Cavalier who, like themselves, had left home and security behind to conquer an unknown land. And from nearly every wagon there swung a plow. Somewhere among the equipage inside, were packages of seeds: corn, wheat, peas; even tiny trees carefully tended along the way, some of which still bloom with every spring.



Good roads lead to all interesting places in Oregon. The McKenzie River Highway, from Eugene in the Willamette Valley, passes through green forests, such as this, climbs the lava beds of the Cascades and down the other side to Bend in Deschutes Valley.—Sawyer photo.

Hunger, thirst, a hundred untold privations these brave men and women suffered on the way. Savages lurked along their trail and many an immigrant and his family perished from tomahawk or arrow. Sickness and disease took toll. All along the torturous trail lie graves, unmarked for the most part since those who lived on sought to prevent the marauding Indian from unearthing the remains of dear ones.

There were other brave folk who came by ship on long perilous voyages around the Horn or via the Isthmus of Panama.

On arrival, the troubles of the pioneer were not at end. He was much on his own. By the toil of his hands he built his home, hewed out his fields and garden from the timber, raised food products to supplant the diet that wild game afforded. Indians, jealous of the white man's inroads on his domain, went on the war path. Many settlers had to lay aside the plow and take up the rifle in volunteer military companies, which, either acting alone or with United States troops, eventually brought peace and safety.

Once the trek began, it gathered momentum quickly. In 1841, 90 immigrants arrived; yet in the whole of Oregon Territory there were only 240 whites. In 1832, 900 immigrants arrived; in 1844, 1400; and in 1845, 3000.

The new country grew. Trails became wagon roads between communities. With the increase of population, came the necessity for law and order. A provisional government was formed at Champoeg, 1843, under the American flag by a margin of two votes. A monument marks the spot on the Willamette River about 30 miles south of Portland.

But the settlers could not be certain that they were Americans settlers on American territory until the question of sovereignty was settled once and for all. Disputes were heard everywhere. The national Democratic Convention adopted the belligerent slogan, "Fifty-four, forty, or fight!" Events seemed to be leading to war.

In the midst of the heated controversy, the United States and Great Britain met in 1846 and fixed the 49th parallel as the Canadian border. The Territory of Oregon was formally organized, March 3, 1849. Abraham Lincoln was invited to become governor but declined because Mrs. Lincoln did not want to go West. Fate had chosen him for greater tasks. Oregon state with its present boundaries was admitted into the Union in 1859 as the thirty-third state.

The coming of the Northern Pacific and Great Northern railways in 1910 heralded the modern On-to-Oregon movement with an in-rush of people and industries that is rapidly building up a great state on the shores of the Pacific.

Oregon Vacation Trails

NATURE gave Oregon fertile valleys, great mountains, snow-capped peaks, vast forests, rivers and lakes of all sizes, and the Pacific Ocean to lap her shores. She filled her woods with game, her streams with fish. Over it all, she wafted a climate so benign both summer and winter that it seemed like paradise to the early settlers.

This was the paradise Lewis and Clark described on their return from their exploratory trip. This was the paradise which started covered wagons rolling westward across the plains, over mountains, down treacherous river gorges, through hostile Indian country. Out of the wilderness, the pioneer hewed his home. At his very doorstep he caught the trout and the salmon that fill the streams of Oregon. In the woods around the clearing, he shot his needs in deer, quail, grouse, pheasants and other game.

Today, through scientific conservation and propagation, Oregon's streams hold as many fish, if not more, and in greater variety, than the pioneer himself found.

The Great Range, which parallels

the Pacific Ocean, and runs from 20 to 35 miles from the sea, sends countless streams, many of them fairly large rivers, into the ocean. In them lurk fighting Cutthroat trout ready to give the angler battle. Many of them weigh up to two pounds; most of them measure from nine to twelve inches long. In the spring and fall, the Cutthroats that live in the sea come up to spawn.

Canned salmon eggs lure the largest fish in the greatest numbers, especially in the tidal areas. The lowly worm, for those anglers who do not disdain its use, gives satisfactory results. For trolling or casting, single or double-bladed spinners, baited with salmon eggs, worms, or crawfish tail trailing on a hook six inches or so behind, bring in the big ones.

Magnificent fighter of the coastal streams is the Steelhead trout, which is structurally the same fish as the Rainbow. If Rainbow spawn are released in coastal streams, they come back from sea as Steelhead. But if Steelhead spawn are released in any of Oregon's primarily Rainbow streams, they grow up as Rainbows. Steelheads average seven to eight pounds, the largest from 15 to 20 pounds. They are as large as salmon, strike both spinner and bait. Fresh salmon eggs in clusters are used as bait. Unlike salmon, Steelheads do not die after spawning but return to the sea and come back again, bigger and stronger.

In the spring, great Chinook salmon, and in the fall, Chinooks and Silversides ascend the coastal streams, and each season there is at least a month of good fishing.

The Willamette River drains the land between the Coast Range and the Cascade Range. The main river itself in its lower sections is not an attractive trout stream, but its upper reaches and forks in the vicinity of Eugene and southward are favorites of many anglers. Tributaries on both sides of the river are among the finest trout streams in the West.

Cutthroats are found in the west side feeder streams, most of which are sluggish, flowing through long flat stretches. In early spring and mid-fall, after rains when the water is somewhat murky, salmon eggs in deep quiet holes bring out many big trout that have come in from the ocean.

Streams on the east side are more turbulent. Both Rainbow and Cutthroat trout are found in these streams. The McKenzie Rainbow or Redside, from two to five pounds, that rises in icy cold waters tests the ability of the best angler. Fishing from boats is the most satisfactory maneuver in the Willamette itself. In its upper reaches, where boats are prohibited, bank work almost always yields fine fish.

Thousands of salmon are caught every year on the Willamette between Portland and Oregon City, 15 miles south. A Portland business man can walk out from his office and in 20 minutes be on the fishing grounds.

Turbulent, eddying, surging Deschutes River, which flows upward into the Columbia from the middle of Oregon is one of the most famous trout streams in America. It is distinctly a fly stream, the answer to a fly caster's prayer. The Deschutes and two of its tributaries, Metolius and Crooked Rivers, harbor stream Rainbows that anglers go far to catch, from April to about July 4 and September and October.

Eastward is the Wallowa region near the Idaho border, in the lakes and innumerable creeks, anglers find excellent fishing.

The Cascade Mountains make a high wall from north to south. There are 200 lakes on their slopes, some of them nestling high in the rugged ramparts of rock, with snow melting at their edges even in summer, and trout, many Rainbows and Eastern Brooks, lurking in their blue depths. Rainbows have been taken from Diamond Lake that weighed 26 pounds. Eastern Brooks weigh as much as six pounds.

At Bonneville, the state fish hatchery, largest in the world, carefully tends and releases ten to twenty million Chinook and Sockeye salmon spawn every year. The total output for the 17 state hatcheries is about 85,000,000. Salmon come upstream to spawn at about four years of age, both male and female dying after spawning, from cuts and bruises received in surmounting the obstacles in the small streams and lack of food, as they do not eat in fresh water.

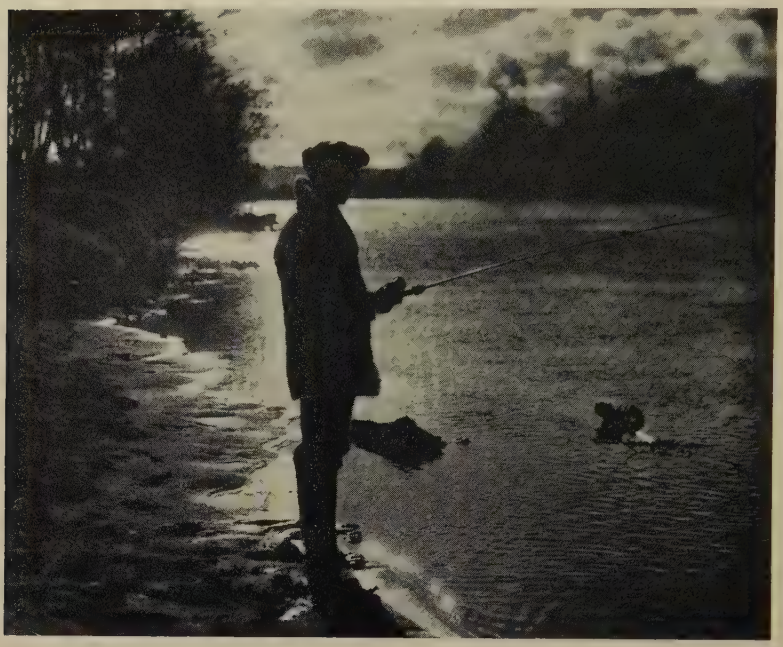
Two fishermen who have been out beyond the breakers come in with their catch. Sea bass, ling cod, perch, flounders can be caught along the Oregon coast. No license is required to fish in the ocean.—Atkeson photo.

Annual fishing permits cost $3. Visitors can get the annual permit, or a two-day permit for $1.

An annual hunting license costs $15. Columbian blacktail deer, Mule deer, Chinese pheasant, duck, goose, bear and cougar are still plentiful. Deer, in fact, are increasing in number. Unique is the large area set aside in Grant county where the bow and arrow are the only hunting implements permitted.

Oregon's $200,000,000 network of paved and macadamized highways makes motoring pleasant and all places of interest easily accessible. The Oregon State Highway Commission maintains a landscaping division which strives not only to preserve the natural beauty of the roadside but also to improve it by judicious trimming of trees where they are so thick as to obscure some charming vista. Where construction work has necessitated marring of the landscape, natural beauty is restored by planting and other operations. State laws prohibit picking of wild flowers and destruction of shrubbery growing along the highways. Timber tracts along highways have been kept from the axe and saw wherever possible.

The Oregon Coast Highway (U. S. No. 101) takes one 400 miles along the Oregon coast, every mile of which has its own charm. Broad sweeps of sandy beach, level as a floor, where the breakers murmur peacefully and where the water deepens gradually, are delightful for swimming. These alternate with rocky ramparts where the mountains come down to sea to defy the waves. Horseback riding, clam digging, collecting agates, surf and deep-sea fishing, boating in the bays or watching the playful sea lions near Florence—these



Eventide along a quiet trout stream. --Photo-Art photo. **Opposite page, upper North Silver Creek falls, near Silverton, a likely spot for fishing.**— Crabtree photo.

and other forms of recreation are indulged in every day in the year.

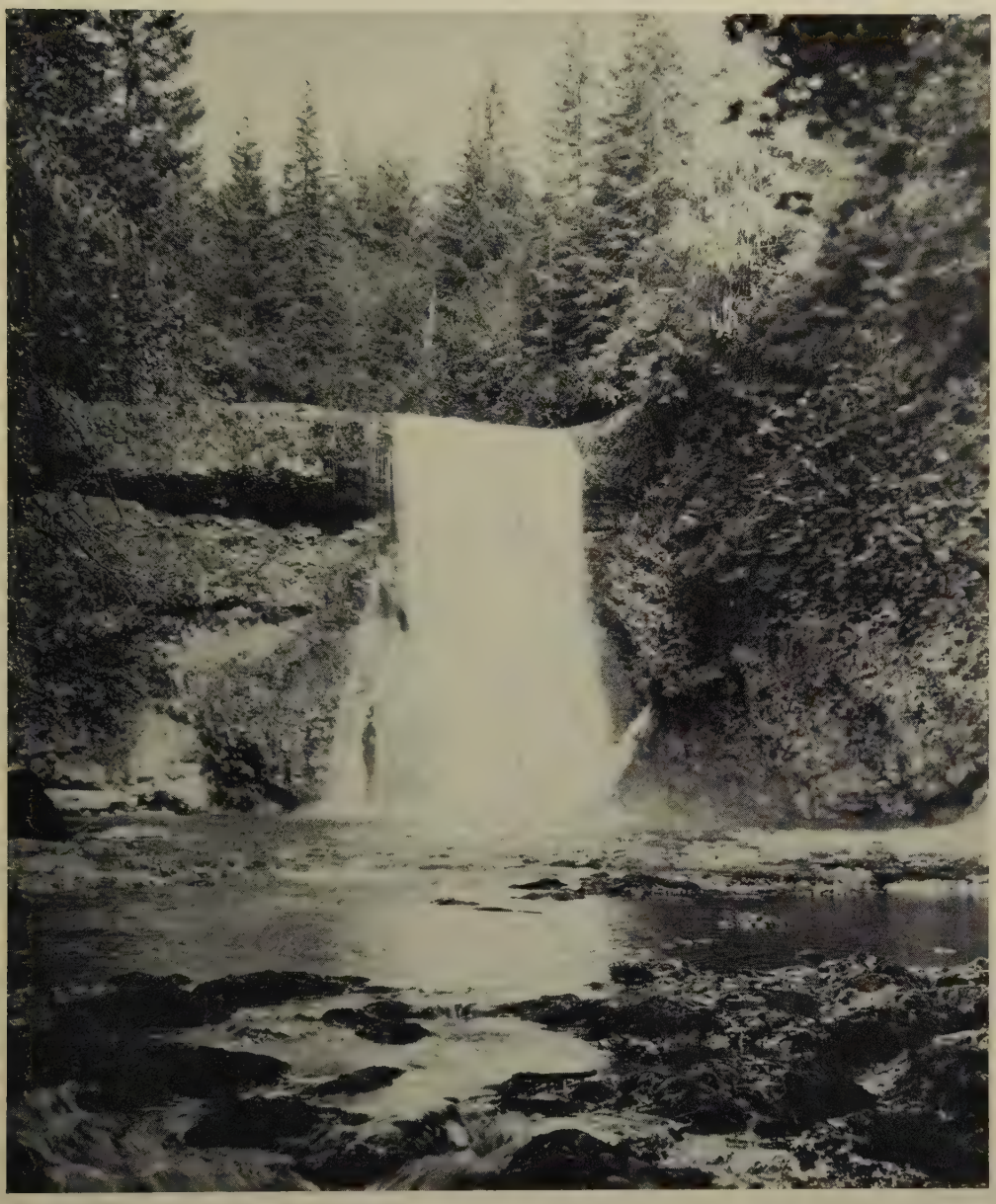
It is a memorable experience to drive through miles of rhododendrons blooming in their full glory or through canyons of blazing, fragrant Scotch-broom. Along the coast, too, are numerous lakes with resorts, and boating facilities for the trout or bass fishermen.

The Willamette valley, spread between the Coast and Cascade Mountain ranges, is rich, beautiful agricultural country. In spring, summer and fall, it is a vast patchwork of orchards, green and yellowing fields, dairy farms and pastures. More than half the population of Oregon lives in the valley. It is honeycombed with roads, most magnificent of which is Pacific Highway (U. S. No. 99) which divides into parallel roads, 99E and 99W, so motorists have a choice of traveling on either the east or west side of the Willamette.

On the other side of the Cascades is The Dalles-California Highway (U. S. No. 97). From this and Pacific Highway, laterals at seven points make it possible to go across the Cascades or go close to many of the 200 trout-stocked lakes, and to Crater Lake National Park. In the crater of a once gigantic volcano, Crater Lake reposes, indescribably blue, six miles in diameter, 2000 feet deep. During the day, the reflections and the coloring change hourly. As the sun sets, the sky, land and water take on hues and shades of color that defy the artist to depict in his most gorgeous pigments.

From Astoria at the mouth of the Columbia, the Columbia River Highway, a part of U. S. Highway No. 30 which runs across the United States, follows the river eastward. At Umatilla, 180 miles east of Portland, the highway dips downward, and crosses the Snake River into Idaho. The Columbia River to Portland is broad and deep and still. From the highway can be seen ships of the seven seas steaming up and down the river. The salmon fishing fleet, sawmills and pulp mills give evidence of the bustling activity by which Oregon is increasing its prosperity.

Motorists drive through roads cut through solid rock precipices, mile after mile. A dozen waterfalls enchant the eye, some of them so close their mist cools one's face. From The Dalles eastward, the highway follows the Old Oregon Trail, through sagebrush and range country endlessly, through wheat fields that disappear over the horizon in the Pendleton region, then over the Blue Mountains.



Much of Oregon is open range where the cattle herds and chuck wagons of Wild West fiction are every-day realities. At Pendleton each year (September 10, 11, 12 this year) is held the well-known Pendleton R o u n d - U p. Cowboys from all over the Western states and Canada vie with each other in bronco-busting, roping and steer bulldozing exhibitions. Two thousand Indian braves, squaws and papooses come with their ponies and all their household belongings, set up their tepees on the round-up grounds, and participate in daily parades and competitive events. After the round-up, they scatter to the hills and rivers to pick huckleberries or take salmon for the winter.

Two other events attract visitors every year: the Pacific International Livestock Exposition (October 3 to 10 this year) in Portland, and the Oregon State Fair (September 7 to 13 this year) at Salem, the state capital.

That part of Oregon east of the Cassades is a vast plateau in which one

Peaceful Crater Lake in Crater Lake National Park. Thousands of tourists go to see the Phantom Ship, a little rock in a lake of blue. No one knows how deep the lake, the crater of an extinct volcano, really is.—Angelus photo.

could put all the New England states with room to spare. It is drier than western Oregon and so unlike it in terrain and surroundings that after two hours' motoring one easily imagines oneself in some land a thousand miles away. In the north are the wheat fields, sheep and cattle ranches, and a number of "dude" ranches. In the south, range country. There are some paved and macadamized roads that lead one into the heart of the country. Where the pavement ends, the roads are still passable for wagons and automobiles; beyond that, saddle and trail. The Federal government has established a 160,000-acre bird refuge at Malheur Lake where millions of ducks, geese, swans and other birds find sanctuary. Hart Mountain Game Reserve gives refuge to thousands of antelope.

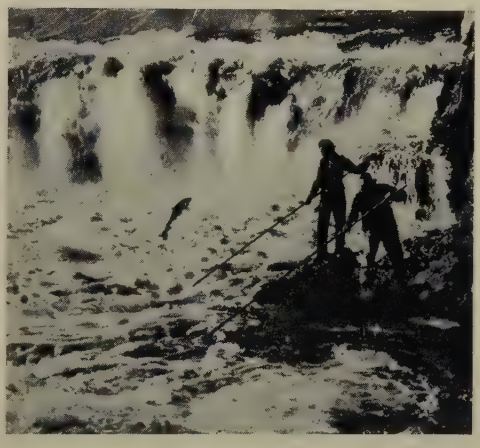
Everywhere in the state, there is restless activity—in industry, education, conservation of natural resources.

If all the scenes described and photographs used to illustrate this article give one an impression merely of picturesque beauty, they do not give a correct picture. Oregon is a wonderful state in which to live. Living conditions are ideal. Educational facilities, climate, opportunities for recreation, the intellectual atmosphere, the feeling of being welcome, are all conducive to a pleasant, civilized existence. Oregon is a growing state, and to any one with ambition, ability and capital, it offers innumerable opportunities.

Portland

FIRST to settle in Portland was Etienne Lucier, retired Hudson's Bay Company servant, who built a little log cabin for himself on the Willamette River in 1829. Next was sailorman William Johnson who settled down after a career on the bounding main in 1842. Third, William Overton who laid claim to the Portland claim, a part of Portland on the west side of

Turbulently the Columbia River flows through the land, as a lone Indian gazes at it with no one knows what thoughts. When the salmon runs, Indians gather to net and spear the winter supply as did their ancestors.—Sawyer photos.



the Willamette River. He gave to Amos L. Lovejoy of Massachusetts, the next man, one-half of his claim. Overton sold his half interest to Francis W. Pettygrove, a new arrival from Maine, for $200. Today, $200 would not buy enough space to park a car.

Pettygrove and Lovejoy decided to christen the land before clearing. Pettygrove wanted to call it Portland; Lovejoy held for Boston. They tossed a coin and Pettygrove won. That was only 93 years ago.

In the early days of difficult transportation, Portland had the advantage of being at the headwaters of navigation from the sea. It was there that trails and, later, roads converged and ships came in from the ocean. In 1850, the census showed a population of 821, 4 of them Negroes. In 1861, there were 2,874; 1880, 17,578. Opening up of the rich country made profitable the laying of railroads, and the use of more and more fast ships.

Today, Portland is a city of 332,000 people, one of the great river ports of the world, in the same class as Philadelphia and New Orleans, the only large river port on the Pacific side of either North or South America. The city is located on the south bank of the Columbia River, 100 miles from the sea, but the main harbor is on the Willamette River, just before it joins the Columbia. It is a transportation hub of rails, highways and steamship and airplane routes.

Panorama of Portland, with Mt. Hood soaring 11,225 feet into the sky 50 miles away. The city has a commission form of government, with a mayor and four commissioners. The bridge in the extreme left spans the Willamette River. In the foreground, buildings that have sprung up in the Portland claim, originally owned by William Overton. He sold one-half share of the claim for $200 in 1845.—Photo-Art photo

GREETING: The Pan-Pacific Union can do much toward building up cordial relations among all the peoples on the Pacific, and through this agency we may be able so to extend our commercial relations that peace and good will will be inevitable.

The great development of the future will be on the shores of the Pacific. Certain it is that in a world torn with misunderstanding, all peoples of the Pacific should unite in a program that will permit us to walk side by side down the avenue of cordiality and international good will. I can think of no better headquarters for this activity than in beautiful Hawaii.

On behalf of the City of Portland, I extend to THE MID-PACIFIC MAGAZINE, and all our friends whom it reaches, cordial greetings and best wishes from Portland, the City of Roses.

JOSEPH K. CARSON, JR.
Mayor of Portland

JOSEPH K. CARSON, Jr.
Mayor of Portland

The city's geographical location made it an important business center, a shipping and receiving station for goods to and from the ends of the earth. There are 549 manufacturing plants, many of them turning out products that are known all over the United States and abroad. Fifty-five steamship lines and six railroads move more than a quarter-billion dollars' worth of goods in and out every year. Freight is sent out to California, Gulf of Mexico and Atlantic seaboard states, Hawaii, the West Indies, Japan, China, the Philippines, Europe, Africa and South America. Passenger service is maintained to the Orient.

For many years Portland has been called the lumber capital of the world, but lumber exports of $6,000,000 are overshadowed by $13,500,000 worth of newsprint paper and $12,000,000 worth of flour. Other export items: wheat, $3,000,000; canned fruits and berries, $2,000,000; prunes, $2,200,000; apples, $2,200,000; pears, $1,360,000, and 50 other items less important but large enough to raise the total to $77,764,137 in 1935.

Imports from foreign countries include Philippine copra, Argentine corn, Hawaiian and Philippine sugar, coffee from Central and South America, grain bags and burlap from India, hemp seed from Manchuria, and iron and steel from Europe, for a total of $161,329,-361.

Busy as the port may seem, there is room for more shipping. Already $40,-000,000 have been invested in harbor and port facilities. Portland has 29½ miles of waterfront, with berthing space for 100 ships, 65 acres of cargo space, four municipal terminals with a municipal grain elevator of two million bushel capacity, three private grain elevators, tanks for liquid cargoes. 1925 deep-sea vessels entered the port in 1935, total net tonnage 5,676,000; 1816 cleared with net tonnage, 5,639,427.

Although Portland is already the principal point of exchange for foreign merchandise north of San Francisco, its citizens are confident that the next few years will increase the city's importance tremendously as a port because of the industries that will be attracted to the area by low-cost energy generated at the great Bonneville Dam.

Portland enjoys the cool bracing summers of northern Maine and the mild winters of Asheville, North Caro-

lina. There is enough rainfall to keep the country green and flowering throuhout the summer and fall. Roses bloom in profusion from early spring until late December. Each June, Portland holds the world-famous Rose Festival, a dazzling pageant of fragrant beauty. It draws thousands of visitors to the city every year. The outstanding feature of the Festival is the grand floral parade in which beautifully decorated floats on which millions of blooms are used, compete for the grand prize. On some floats, as many as 100,000 blooms are used.

Portland is a city of home lovers. Half of the people live in their own homes, with spacious lawns liberally planted to flowers. There are 56 parks (2,292 acres), 24 supervised playgrounds (200 acres), 14 bathing pools, all so located that one or more are available to every child in the city. There are also 2 bathing beaches, 3 municipal golf courses, 9 public golf courses, 8 private golf courses, a civic stadium seating 25,000 persons and a public auditorium seating 5,500 persons.

Portland has no block of slums, no groups of illiterates. Illiteracy is less than 1 in 2000. The central library system has 18 branches and 280 other distributing points, and lends an average of nine books per capita, the second largest per capita circulation in the United States. The excellent school system, liberal patronage of the arts, the symphony orchestra, one of the finest in the world, and the junior symphony organization are all good indices of Portland's character.

Many of Oregon's beauty spots and fishing grounds are near Portland. Mt. Hood can be reached after a drive of 1½ hours. Trout streams are within a half mile of the city. Within a few hours' drive are the world's finest fishing streams, mountain forests, ocean beaches. Paved highways lead to pleasant recreation in all directions.

Oregon Agriculture

A DISCUSSION of Oregon's agriculture could be devoted entirely to statistics which would leave the reader with no adequate idea of the outstanding accomplishments and abundant possibilities of this industry.

It has been said that any crop which will grow in the north temperate zone can be grown in Oregon, and one can go even farther and include a few of the semi-tropical crops, so mild is the climate of the west coastal region. It is this great diversity of crops, arising from an equal diversity of climate and soil, and the outstanding development of specialty crops, which chiefly characterize the state, rather than its total production of any one crop or even all crops.

Only a little more than one-fourth

Beautifully decorated floats vie for prizes in the floral parade, the outstanding event of the Portland Rose Festival.
—Photo-Art photo.

Willamette valley wheat for our daily bread and our morning cereal.—Prentiss photo.

of Oregon's land area is considered farm land, and as a great portion of it is not intensively cultivated, the total farm production of Oregon is exceeded by a great many other states. Few states, however, can boast of as steady production of its crops, with such consistent absence of crop failures. It is no wonder that the state in recent years has become a Mecca for thousands of drouth and flood sufferers from the mid-West and East.

These new settlers have been able to find practically any type of climate and other environment they desire. Along the extreme western coast they have been able to settle in regions where the annual precipitation exceeds 100 inches a year and pasture crops for the support of dairy herds are the chief dependence of the farming population. Those who prefer the drier prairie type of farming have been able to find it in the Columbia River basin east of the Cascades and along the northern border of the state where the bulk of the small grains are produced.

If they were inclined towards general farming, they found it in the great Willamette valley, the Blue Mountain region, or the southern Oregon district. Those who prefer to control their water supply rather than depend upon nature could choose from a number of organized irrigation projects, or could, as is being done by hundreds of farmers in the supposedly well watered western Oregon region, install their own private irrigation system.

Those who have desired to specialize in tree fruit production have had the choice of three or four outstanding regions for this purpose. Hood River, long famed for its fine apples, is now almost equally a pear-producing region. The Rogue River valley district in southern Oregon has a world-wide reputation for its winter pears which move to market by the trainload every year. The Willamette valley, parts of southern Oregon and the northern Umatilla region in eastern Oregon are centers of prune and cherry production, while the Grande Ronde valley in northeastern

Mt. Hood reaches protecting arms around Hood River valley, noted for apples and more recently for pears.—Prentiss photo.

Oregon and Wasco county adjoining Hood River specialize in cherries, apples, apricots and peaches.

Among Oregon's outstanding specialty crops are many of a horticultural nature. It produces English walnuts that are second to none in quality, although California exceeds in quantity. Filbert production, on the other hand, is almost an Oregon monopoly, so far as the United States is concerned.

Other Oregon monopolies: fiber flax, bent grass seed, certain flowering bulb crops. Ladino clover seed and many of the field seeds which have been developed to provide crops of high value not seriously affected by distance to market.

It has frequently been said that grass is Oregon's most important crop. The reason is that Oregon's animal industry brings an income of more than $50,000,000 to the state annually, much of it from range livestock. Vast areas of the public domain in sparsely settled central and southeastern Oregon, as well as millions of acres of forest reserve sustain large herds of animals on much the same scale as was the case in pioneer days.

So valuable is this industry to the state that important steps have been taken recently to preserve it for all time. This is being made possible through the operation of the new Taylor Grazing act and other provisions by which it will be possible to protect the productivity of the land against improper use.

Included in the livestock industry must be mentioned the important dairy development which brings an income of more than $30,000,000 a year. Formerly an importer of dairy products, Oregon now exports highest quality cheese and butter and processed milk products.

Oregon is rapidly becoming the center of an important food processing industry, with canneries and freezing plants providing a steady outlet for millions of tons of vegetables, small fruits and tree fruits which find their way to the grocery shelves of the world. Steady production of a diversity of crops with no crop failures assures the

Interior of a packing plant where pears are washed, dried, sorted and put in boxes in one continuous operation. Below, pears on the tree. —Prentiss photo.

food processing industry a long season of operation.

Oregon has pioneered in the development of frozen food products and created a steady increase in demand for this type of food which may eventually absorb the total production of certain vegetables and small fruits.

Oregon State College experiment station and extension service and more recently the centralized state department of agriculture have led the way for agricultural progress. They have been concerned not merely with promoting heavy production, but with the development of community, county and regional enterprises which will tend to promote the largest and steadiest return to the growers.

Whole counties have been encouraged in the development of specialty crops for which they are best suited. An example of this is the growth of the potato industry in Klamath county, formerly devoted almost entirely to livestock and hay. By specializing on high quality potatoes, grown under irrigation giving large yields, the county has made its product first in coast and Eastern markets and greatly increased the income of the region.

The extension service has sponsored a system of periodic county outlook conferences through which the agricultural resources are examined from time to time by the growers themselves with the aid of specialists, and the most profitable procedure charted for the future. As a result of these, a newcomer in the state need never depend on his own judgment or the advice of his neighbors, but has access to the best recorded information of the past, which he may apply to the development of his own farm business.

As agriculture in almost any part of the world nowadays is a highly competitive business, the state, with the assistance of the Federal government, has taken precautions to see that Oregon's farmers are supplied with the best ma-

terials and information with which to guide their business. In addition to the central experiment station located at Corvallis, there are now 10 branch stations scattered throughout the state where specialized conditions of climate and soil make local investigation imperative.

The John Jacob Astor branch station at Astoria, devotes its energy to solution of problems of the coast dairymen and the production of vegetables and other specialty crops; the Hood River station, to the solution of the specialized problems of the commercial fruit grower; Sherman county's station at Moro in the dry farming wheat belt, to cereal crop breeding and testing; Pendleton station to cereal and grass production in a region of heavier lands and more moisture; the Hermiston station, located on an irrigation project, to forage pro-

The makings of strawberry shortcake and jam being picked in a Willamette valley field. Top of the page, typical view of the luxuriant Willamette valley farming section.—Prentiss photos.

duction, dairying and poultry-raising, Union branch station to production of general crops, but more especially the investigation of livestock feeding problems.

In the southeastern section are now two stations—one at Burns, where the possibilities of crop production at high altitudes and in short seasons have been studied, and the Squaw Butte station, with more than 15,000 acres of range land where the problems of range use and conservation will be studied for the first time.

Two other stations are in southern Oregon, one at Talent where the development of pear stocks resistant to fire blight has been an outstanding achievement along with other horticultural breeding work, and the other at Medford, where the problems of irrigation and management of specialized commercial pear orchards are being studied.

Oregon has, in time past, been the unhappy recipient of agricultural booms. It hopes that it has outgrown this stage. It has by no means reached the limit of its agricultural development through the steady, intelligent work of its growing agrarian population—JOHN C. BURTNER, Oregon State College.

The Vale Owyhee Irrigation Projects

IN 1924 and 1925, Congress made appropriations to start construction of the Vale and Owyhee irrigation projects of approximately 100,000 acres. These projects join one another in Malheur county in southeastern Oregon, with one-third of the Owyhee project extending into Owyhee county, Idaho. These United States Bureau of Reclamation projects will cost $24,000,000.

Sixteen thousand acres are now being served with water from the canals of the Vale project, and construction is practically complete to water 10,000 acres of the Willow Creek unit on this project in 1936. The present water supply for the Vale project is obtained from storage water from the Warm Springs reservoir, capacity 190,000 acre-feet, located on the middle fork of the Malheur River near Riverside, Oregon. Storage for 15,000 additional acres is now being provided by the construction of a dam of 60,000 acre-feet capacity on the north fork of the Malheur River near Beulah, Oregon. The main canal is designed to carry one cubic foot of water per second for each 50 acres of land to be irrigated. With the completion of this reservoir 30,000 acres of the Vale project will be under irrigation.

Water for the Owyhee lands is supplied by the Owyhee dam located 30 miles southwest of Nyssa on the Owyhee River, which was started in 1928 and completed in 1932 at a cost of $5,378,125. This dam was the largest in the world until the Boulder dam was built. It is 520 feet from the lowest foundation to top; 30 feet thick at the top increasing to 255 feet at bedrock and is 835 feet long at the crest. The dam bridges a canyon 300 feet wide, is 2,675 feet above sea level, and has a capacity of 715,000 acre-feet live storage, 405,000 acre-feet dead storage, creating a lake 52 miles long and from one quarter to about seven miles wide. In March, 1936, the reservoir held live storage for two years' irrigation for the entire project with the 1936 run-off yet to come.

This project has 60,000 acres of which 50,000 acres are in Malheur county, Oregon, the balance in Idaho, and in January, 1936, construction of the Owyhee project was approximately 90 per cent completed. In addition to the new lands water will be delivered to 35,000 acres formerly irrigated by individual pumping systems taking water from the Snake river. The owners of this land have a prior right over the government to the water from the Owyhee dam. Supplemental water will be furnished 12,000 acres additional which had a partial supply from the Owyhee river.

These projects will have three acre-feet of water delivered to the highest point of each 80 acres; many crops do not need more than two acre-feet unless there are several dry years in suc-

The Columbia River Highway follows the Old Oregon Trail through beautiful scenery. 33 miles from Portland is Multnomah Falls, second highest falls in the United States (620 feet), named for legendary Chief Multnomah. Through the branches of the tree which obscures the lower part, sharp eyes can detect the bridge which permits a close-up view of the shimmering, mystic falls. The handsome privately operated lodge is open the year around.

cession. Irrigation is not new to that area as it has been practiced for forty years and is a proven success. Water charges are payable to the government over a period of 40 years without interest.

Drainage usually becomes quite a problem on most irrigation projects but as yet has not caused trouble on the Vale and Owyhee.

The soils range from sandy loam to silt loam and in general have good fertility and depth. Under irrigation and proper tillage these soils produce large yields of most crops common to the temperate zone, such as alfalfa, corn, root crops, potatoes, truck, red clover for hay and seed; also fruits of all deciduous varieties. The large yields and low cost of producing alfalfa and corn make this an excellent country for the production of livestock and dairy products. Turkey raising is also one of their principal enterprises.

The climate is mild, the growing season adequate and farming conditions agreeable. The elevation ranges from 2,250 to about 2,500 feet above sea level. The precipitation averages about 10 inches a year.

Both private and cooperative marketing for practically all produce is well established. Range livestock furnishes a market for the greater portion of the hay and grain produced on the irrigated lands.

Electricity is available to practically all the farm homes and the Blue Mountains just a few hours automoble drive over surfaced highways offer many opportunities for camping, fishing and hunting. Schools and churches are located in every district.

Three Oregon state highways serve that district as well as the main line and three branches of the Union Pacific Railroad.

The leading towns on these projects are Vale, Harper, Nyssa, Adrian and Ontario.—MARGARET SULLIVAN.

Oregon Lumber Industry

TWENTY per cent of the timber stand of the United States is found in Oregon. The total Oregon stand is 390,793,000,000 feet, board measure, log scale—90 billion feet, chiefly ponderosa pine, in eastern Oregon; 300 billion feet, 76% Douglas fir and 9.6% western hemlock, in western Oregon. Other commercial species are spruce, Port Orford cedar, western red cedar, silver, noble and Shasta fir, alder and maple.

The figures given are for timber of saw timber size—trees from 12 to 40 inches and over in diameter, breast high. They do not include vast quantities of smaller timber, much of which is undergoing natural or artificial processes of reforestation. These commercial stands cover 19¼-million acres in western Oregon where climate and soil are highly favorable to reforestation.

Reforestation is proceeding along two lines, natural and artificial. Natural reforestation is a continuous process retarded by fire or failure to harvest mature timber thus making way for new growth. Reforestation is practiced extensively by the United States Forestry Service and by the State Forestry Service and to a considerable extent by timber owners. Artificial reforestation is encouraged by the Oregon Reforestation Law under which the owner of cut-over lands which are suited to the growing of forest crops may plant these lands to trees, paying thereon five cents per acre per year until the timber is harvested at which time he must pay 12½% of the gross income from the sale.

More than 1,000,000 young trees are set out each year. Some of the finest pine nuts or seeds for reforestation are obtained from squirrel nests (as much as 200 pounds to one nest), which are replaced with wheat or corn.

Forest experts declare that with the exercise of reasonable care and the practice of sound forest management, the timber supply here may be maintained in perpetuity. To that end legislation favoring reforestation, the advocacy and adoption of selective logging and sustained yield programs, and the readjustment of the timber tax burden are being advocated.

The manufacture of lumber was one of the earliest industries established in Oregon. In 1880, the total production value of lumber, sash, doors and blinds was $2,300,000. Today, the export value alone of lumber is $6,000,000 annually. Logging is work for strong men, who take nine-foot diameter trees in their stride.—Brown photo. **Below, heavy machinery loading logs on cars for transport to the mills. Almost denuded, these hills will be reforested, partly by the natural sprouting of seeds and partly by the setting out of trees by the Federal and State Forestry Services.**—Brown photo.

Lumber production in Oregon in 1929 amounted to 4,784,000,000 feet; in 1932 (the depression low) 1,603,892,000, and in 1934 to 2,379,642,000 feet. Figures for 1935 are not yet available, but it is known that they showed a substantial gain over 1934; and 1936 is registering gains over 1935.

A survey made in October, 1935, showed that the wages of the industry averaged 62.5 cents per hour, 6.1 cents more than the average American industry wage of 56.4 cents, 2½ cents more than the average of all durable goods industries of the United States.

The manufacture of lumber and wood products in Oregon is second only to agriculture as a source of wage income. Oregon knows the importance of insuring a perpetual supply of timber since normally, the wood-using industries employ more than 60 per cent of all persons engaged in manufacture; and pay more than 60 per cent of the wages in the manufacturing industry.—FRANK M. BYAM, Manager, Research Department, Portland Chamber of Commerce.

Eugene, the University City

WESTERN Oregon is a beautiful and comfortable place in which to spend a vacation or live the year around. Eugene, Oregon's third city, located in the midst of natural beauty, is surrounded by wooded hills and buttes. It is at the head of the Willamette Valley, 125 miles south of Portland, and 72 miles south of Salem, the state capital.

It is spared the excessive rainfall from the west by the Coast Range mountains, and the extremes of the interior on the east by the Cascades, and carries on much economic activity, while enjoying sufficient seasonal change to accelerate business and stimulate demand for seasonal merchandise.

The greater part of Eugene's rainfall occurs during the winter and early spring months. Early maturing crops flourish without irrigation. Heavy rains are uncommon, most precipitation falling in the form of gentle showers or Oregon "mist". Except in the Cascade Mountains, whose passes are closed with snow for nearly seven months, snow melts within a few hours or a few days at the most. Thunderstorms, lightning, windstorms and hailstorms are practically unknown. The official growing season, according to 46-year records, is 199 days, although there is considerable favorable growing weather aside from the average frost-free period.

Lane county, of which Eugene is the county seat, contains 2,958,302 acres of which 361,190 acres are cultivated or cleared pasture land on operated farms. The balance of the land is largely covered with timber, Douglas fir predominating. Of the total timbered area in the county, 1,283,802 acres are under private ownership and 1,347,950 acres are in national forests available for cutting according to the 1933 report of the United States forest service. The 361,190 acres of cultivated land lies almost entirely in the valleys of the Coast Fork and Middle Fork of the Willamette River and the McKenzie River to the east of Eugene, in the Willamette valley to the north, and in the Long Tom and Siuslaw River valleys to the west. While none of these streams in the vicinity immediately adjacent to Eugene are of recognized value for navigation, except for small craft, they provide excellent fishing.

Outdoor activities can be enjoyed the

Pride of Eugene, Oregon, is the tree-clad University of Oregon campus to which Friendly Hall lends dignity and charm.—Eddy photo.

37 miles from Portland on the Columbia River Highway, is St. Peter's Dome, a pile of basaltic rock which towers 2000 feet into the air.—Sawyer photo.

A scene in The Oregon Trail Pageant, depicting an episode in the history of Oregon, presented every three years in Eugene.

year around in the Lane county area. Within 75 miles from Eugene, on the east, are the Three Sisters with their snow-capped peaks crowning the beauties of Willamette National Forest, easily reached by way of McKenzie and Willamette Highways, following the tree-clad valleys of those rushing mountain streams for which they have been named. Within the same distance to the west, is the well-timbered coast range, the beautiful Oregon coast, and the mighty Pacific in its impressive setting of smooth beaches alternating with rugged shore line bordered with fine highways and toll-free bridges. You can fish for rainbow and steelhead, salmon or try deep-sea fishing off coast. Boating, hunting, camping, hiking, swimming can be enjoyed all year long, winter sports in the Cascades during the four or five winter months, combining snow sports with outdoor swimming in hot-spring-fed bathing pools.

The beautiful tree-clad University of Oregon campus is the pride of Eugene. An old mill race winds through the fraternity and sorority district and provides the students with a convenient place in which to swim, canoe or put on their annual canoe fete during junior week-end each spring. Approximately 3,000 students each year study under a faculty of 235 instructors, and are required to maintain a high scholastic standing. On the 87-acre campus are 38 buildings, including the famous Murray-Warner Oriental Art Museum, which is open to the public. The Northwestern Christian College, specializing in Bible courses and liberal arts, brings an additional two hundred students to Eugene each year. Among other schools are three business colleges and other specialized trade schools.

The Lane County Agricultural Outlook Conference has submitted an interesting picture of agriculture in its 1936 report. This report indicates the number of farms in the county has quadrupled during the past 55 years, but total acreage per farm has decreased from 301 to an average of 113 acres and the improved acreage per farm from 191 to 36 acres.

Farmers see a bright future for seed crops of vetch, field peas, rye grass, clover, and other varieties are increasing in importance. Alfalfa and clover are reasonably profitable, useful in dairying and land rotation work. Irrigation of pasture lands is doing much to maintain milk production and is being more widely used for fattening lambs. Filberts, an exclusive Oregon and Washington product, have a favorable market outlook. Dairying, raising of horses, hogs and poultry are all expected to increase. Partly through increasing population of the Pacific Coast, and partly through increasing national popularity of Oregon canned vegetables, irrigated truck crops will undoubtedly increase.

An important crop that has but recently been revived by industrial development in the vicinity of Eugene, is fibre flax. A retting and scutching plant for fibre flax is now under construction, to be ready for the fall flax crop. Flax mills located at Salem and at Vancou-

General aerial view of Bonneville Dam. Right, the Oregon bank of the Columbia River; left, the Washington bank. In the middle, Bradford Island. The powerhouse dam and ship lock will be on the Oregon side.

ver, Washington will process the flax fibre produced by the Eugene plant. Fibre flax can be grown successfully only in Oregon and Washington in the United States. To insure consolidated effort, Eugene farmers have organized the Eugene Fruit Growers' Association. Eugene Farmers' Creamery, Farmers' Union Cooperative Association, Pacific Cooperative Egg Producers, and the Producers' Public Market.

The 1930 Census of Distribution indicated that the 363 retail stores in Eugene were doing an annual business of $16,264,425 with a yearly payroll of $1,608,112 and giving employment to 1,103 people. Eugene's trade comes from the coast industries, a valuable farm market, the University of Oregon, the timber and other local industries, mining development (about 50 miles southeast of Eugene) of gold, quicksilver, silver, lead, copper, in addition to the other general but important activities of this region.

That Eugene is a pleasant place in which to live, is indicated by the large number of retired persons, many of them army officers, persons who can afford to live anywhere in the United States, who have chosen Eugene or Lane county as their home. The interesting features of a pioneer country are still to be found in Oregon combined with the culture that is naturally a part of Oregon's university city.—JOHN F. DURR, Secretary, Eugene Chamber of Commerce.

Bonneville Dam

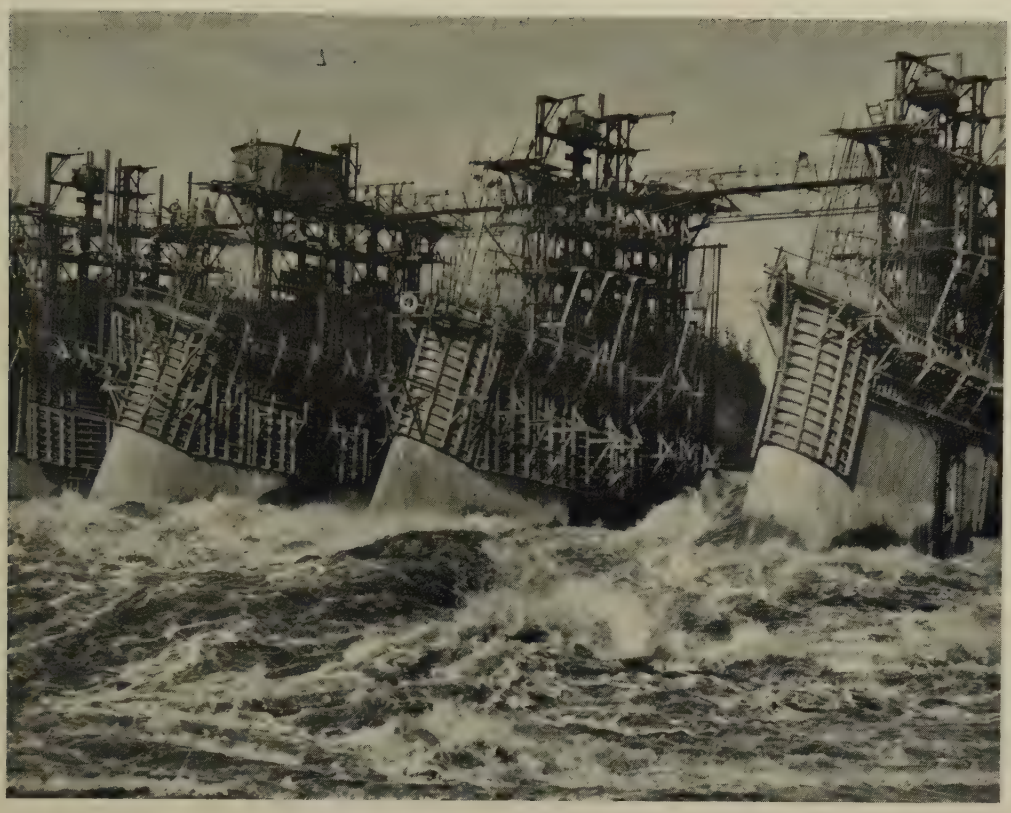
BONNEVILLE Dam, on the Columbia River, 43 miles east of Portland, will be completed in the fall of 1937. It will then be able to produce enough electrical energy fully to electrify every farm in Oregon and still have 95% of its power left for other uses. If the electricity is sold to reflect actual production costs, it will be the cheapest power available in the United States. Oregon and Washington have thus become potential industrial areas of such vast proportions that only the future can tell how vast.

Oregonians already visualize Portland as another Pittsburgh and Bonneville Dam as another Niagara of power. They envision great industrial development in every field—metallurgy, chemistry, agriculture, forestry.

Ocean-going ships will be able to go up the Columbia to the dam and, after being lifted at the locks, ascend 50 miles farther upstream. Three transcontinental railroads pass the dam site.

Great empires have been builded on natural resources, transportation facilities, and physical energy and ambition of the inhabitants neglible in comparison with those which Oregon and Washington will possess.

The Bonneville power-navigation dam is today nearly one-half complete. A year hence, there will be a 50-mile lake,



The concrete piers of the Bonneville powerhouse dam will rise 85 feet, with huge gates between piers. When the dam is completed, it will be a man-created Niagara of power.—Photo-Art photo.

making possible inexpensive transportation by sea-going vessels and river craft to The Dalles, Oregon, 96 miles east of Portland. The impounded water will be directed through generators to produce 600,000 h. p. of electrical energy—about three billion k. w. hours annually. Niagara Hudson's Schoellkopf Station produces 450,000 h. p.

It was during the Hoover administration that Congress directed the U. S. Army Engineer Corps to survey the Columbia River and its tributaries and report upon the most desirable uses of these rivers for flood control, irrigation and hydro-electric development; $750,000 was spent for the survey, and the Bonneville Dam was recommended as the first unit in the long-period Federal development.

Engineering difficulties encountered in placing spillway and powerhouse in the swift, often turbulent, Columbia taxed the best engineering talent of the nation. At Bonneville, the river is divided in two by Bradford Island, with the narrower half, called Bradford Slough, on the Oregon side. The water was cut off on this half by placing embankments on the upstream and downstream ends to force the river to flow on the Washington side. The earth was removed down to bedrock for the powerhouse substructure and immediately upstream, an impregnable concrete bulwark, the powerhouse dam. Two units of the power plant and substructure for four more will be built. Ultimately ten to twelve units will be installed.

The navigation lock at Bonneville is the largest single lift passage in the world for ocean-going vessels. It will take approximately 15 minutes for a boat to pass through.

Paralleling the Oregon shore and abreast of the powerhouse dam, a cavernous hole was hewn from solid rock and concrete was formed on either side to create the ship lock.

The Washington side of the river will be dammed by an 1100-foot spillway dam. It will be 165 feet wide at the base of solid concrete tapering to the top 24 feet to 45 feet wide. This will be surmounted by 18 steel gates set between concrete supports 10 feet

thick, which in turn will be surmounted by a track for a traveling crane for raising or lowering the gates to control the head of water.

To build it, giant rock-laden timber cribs held in check the northern half of the Columbia River while workmen again sought and reached bedrock, placed thereon half of the spillway piers. Another semi-circular cofferdam will be anchored to the Washington shore and the remaining steel-and-concrete piers will be erected to complete the spillway dam.

In the fall of 1937, the dam will be completed and begin to pay dividends.

Climbing to the Top of Oregon

EVERY morning, from my bedroom window, if it was not a rainy day, I beheld Mount Hood, that rugged uplift of rock and ice and snow. How resplendently it threw back the rays of the morning's rising sun! One morning it seemed to beckon me to it. Would I go? I would! I would scale it, and as emblematic of the high regard in which I held my *confrères* I would plant a Caduceus in its crest.

In the early dawn of the following morning, Mount Hood, in its draperies of snow and ice was again throwing back the pink and purple of another glorious sunrise. From where I had camped for the night, it did not look farther away than just the other side of the neighboring fir trees. How beautifully it shone! Was there ever a king, in royal purple, so masjestic, so free from self-admiration or self-pity, so calm in sunshine or in storm, so free from vanity, secret lusts or untamed passions? And I was to scale its rugged sides, and, ere another day had come, stand upon its mighty head.

What a morning with which to begin such an enterprise! Not a cloud from horizon to dome. A heavy dew on leaf and grass added a freshness to the air already redolent with the aroma of the woods. There was positively nothing scientific in my adventure. It was, in all truth, prompted by curiosity, and the whim of a moment. Not unusual for a lover of the great out-of-doors,—then, to add zest to the exploit, I concluded to be the first person to plant the wand of Mercury beneath an ice cap.

So, at dawn, I broke camp and was on my way—through forests of fir, of pine and of cedar, around giant trees and the noses of projecting rocks, over moss-covered logs, and beneath smarting bushes that tugged at the pack that was hanging from my shoulders. Upward I threaded my way. Upward, slowly but surely, toward the cloud-capped inn where timber-line and snow-cap meet. Far below this point, stretches, in circumfluent density, a primitive forest, clutching with its roots the rising slopes. High above, in the grasp of a perpetual frost, clings the snow-cap, that, like the inevitable hat of William Penn, was never doffed.

My camping pack tucked away in a corner of the Inn, armed with pike, rope and pick, my boots well spiked, with an agreeable and experienced guide, the last leg of my ascent is begun. What had looked like a smooth, purplish-pink surface from my camp in the early light of the day's dawn, was a composite of grinding glaciers, yawning fissures, jutting boulders and leaping torrents of melting ice and snow. Tons of ice breaking from mother glaciers to fall, with fearsome rumblings, into hidden depths; treacherous trails. Campbell was right—distance does lend enchantment to the view.

All this took place twenty years ago, and so far as I am aware, the Caduceus still rests on the very top of Mount Hood. When at last I had planted it, I stood in forlorn poise on the crown of that venerable peak. The falling temperature, herald of the approaching night, was stiffening my drenched garments. Back to the inn we wended our uncertain way. Night had long since fallen before we reached it. Long after I had returned to my hearth, there were aching muscles, but today not a thing of the experience remains but the memory of that wonderful farflung view of the great out-of-doors.—J. CHRISTOPHER O'DAY, M.D., F.A.C.S.

John Bull Through Chinese Eyes*

By LIN YU-TANG, Ph.D.

I HAVE CHOSEN as my topic for discussion China and England, and hope you will excuse me for avoiding any discussion upon problems of the Pacific. Ten or fifteen years ago there was a Shanghai editor of a great Chinese daily paper who consistently avoided comments on the most important questions of the day. In time he developed the reputation for editorially handling "distant and not immediate topics, foreign and not domestic problems, and general and not specific subjects," such as The True Duties of Citizenship, The Importance of Obedience in Children, etc. I am going to follow that worthy gentleman's example by not talking about the problems of the Pacific, because I want to be on good terms with everybody and have no desire for wounding any nation's sensibility.

For you must have all realized that against the ideals of the Pan-Pacific Association there has recently come into more and more prominence the Pan-Asiatic Doctrine, and you must have realized that these two ideals necessarily and directly conflict with each other. One cannot subscribe to both ideals at the same time. The Pan-Pacific ideal regards the Pacific Ocean as a great center of future international trade, while the Pan-Asiatic Doctrine regards the Pacific Ocean as a great gulf to separate the white and yellow peoples. According to the Pan-Asiatic Doctrine, the white man's appearance in the Far East is an intrusion, and the sooner he gets out the better. We have already come to the point where the lending of a loan or furnishing of technical exports by a European nation to China is regarded as a "danger to peace in the Orient." By and by, you will find that any one who dares to uphold the spirit or letter of the Washington treaty will also be regarded as "endangering peace in the Orient." And there may come a time when an English firm that dares to sell cotton goods or Capstan cigarettes in China will also be regarded as an enemy to peace in the Orient. As I told you, I am a man who loves peace, and I am therefore not going to endanger peace in the Orient by discussing problems of the Pacific.

So I am going to speak of my impressions of the white man. I am not going to tell the truth, at least not the whole truth, so you need not be scared. These reflections on the white man are very natural because the spectacle of present-day Europe is extremely thought-provoking. Everyone knows that Europe is in a mess. All nations today seem to be in a frightful fit of bad temper. We cannot help asking why it is so, because where human events are in a mess, the human beings must be at fault. We are forced to ask ourselves, what are the psychological limitations of the European which make peace so difficult in Europe? What are the peculiarities of the European's mental make-up? And by mental make-up I do not mean intelligence or thinking pure and simple, but the whole psychological reactions to things. I would never for a moment question the intelligence of the European race. But the sad part of it is, after all intelligence has very little to do with the course of human events, which are more dictated by our animal passions.

Human history is not the product of the wise direction of human reason, but is shaped by the forces of emotion—our dreams, our pride, our greed, our fears

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and our desire for revenge. Europe is dominated not by intelligence, but by the animal passions of fear and revenge. Progress in Europe is not the result of the white man's thinking, but of his lack of thinking. If there were a single supreme Human Intelligence today put at the head of Europe and guiding its entire destiny, Europe would not be what it is today. Modern Europe is not ruled by a single supreme Human Intelligence but is ruled by three men with big and powerful jaws—Signor Mussolini, Adolf Hitler and Josef Stalin. You know what I mean: some faces are like triangles, with the broad base situated below (the dictators and men of action), and some faces are like inverted triangles (the men of ideas and thinkers: Bertrand Russell, for example). The man of intelligence and the man of action belong to two entirely different types. The German nation could swear allegiance to "God and Hitler," but if an English Nazi party were to swear allegiance to God and Bertrand Russell, Bertrand Russell would die of shame. So long as Europe is ruled by these men with big and powerful jaws, and so long as you are willing to be ruled by men with big and powerful jaws, Europe must continue along its present lines of development and head for the abyss it is heading for today.

What I was trying to say was that the course of human history is not guided by our reason, although it should be when we are more civilized, but is essentially shaped by our dreams and passions. Every nation dreams and acts more or less completely on her dreams. Human history is the result of the conflict of our ideals and realities, and the adjustment between ideals and reality determines the peculiar development of that nation. The U.S.S.R. is the result of the Russian capacity for dreaming; the French Republic is the result of the French passion for abstract ideas; the British Empire is the result of the wonderfully robust English common sense and their entire lack of logical reasoning; and the German Fascist regime is the result of the German love for a common front and mass action.

But I am going to speak about England in particular, for several reasons. First, because as a Chinese, I feel all foreigners in China are Englishmen. The International Settlement in Shanghai is known among the Chinese as the "British Settlement", and we are probably right. Secondly, because the English show more sense and less sensibility. I would at any time twist the British lion's tail rather than pinch the whiskers of a Japanese marine. The British lion has a better sense of humor. And thirdly, because I feel I understand England better. I feel the spirit of the English people is more akin to the spirit of the Chinese people, for both nations are worshippers of realism and common sense. There are many points of similarity between the English and the Chinese in their modes of thinking, and even in their modes of speech. Both peoples have a profound distrust of logic and are extremely suspicious of arguments that are too perfect. We believe that when an argument is too logical it cannot be true. And both countries are gifted more at doing the right thing than at giving happy reasons for doing them. All Englishmen love a good liar, and so do the Chinese. We love to call a thing by anything except its right name. Of course there are many points of dissimilarity (the Chinese are more emotional, for instance), and the Chinese and English sometimes exasperate each other, but I am digging at the roots of our racial makeup.

Let us analyze the strength of the English character and see how England's glorious career as a nation arises from it. We all know that England has had not only a glorious career, but has had also a positively amazing career. England always had the knack of doing the right thing and calling it by the wrong name, as they are, for instance, calling the English democracy a monarchy today. Now it is very difficult to appreciate this quality of English greatness, and I propose to initiate you into the beauties of it. The English nation has been misunderstood, and it takes a Chinese to understand the English racial character properly. The English people have been accused of hypocrisy, inconsistency, a genius for muddling through, and a notorious lack of logic. I am making a defence of English inconsistency and English common sense.

The accusation of hypocrisy is unjust and arises from a lack of true understanding and appreciation of the English character. I think, as a Chinese, I can understand the English character better than the Englishmen understand themselves.

I am trying here chiefly to give a point of view for a true appreciation of England's greatness. In order to appreciate England, one has to have a certain contempt for logic. All this misunderstanding of the English people arises from a perverted idea of the true function of thinking. There is always a danger that we regard abstract thinking as the highest function of the human mind, to be valued over and above simple common sense. Now the first function of nations, as of animals, is to know how to live, and unless you learn how to live and adjust yourself to changing circumstances, all your thinking is futile and a perversion of the normal function of the human brain. We all have the perverted idea that the human brain is an organ for thinking. Nothing is further from the truth. That view, I submit, is biologically incorrect and unsound. Lord Balfour has wisely said that "The human brain is as much an organ for seeking food as the pig's snout." After all, the human brain is only an enlarged piece of the spinal column, whose first function is to sense danger and preserve life. We were animals before we became thinkers.

The so-called logical reasoning is only a very much belated development in the animal world and even now it is still highly imperfect. Mankind are only half-thinking and half-feeling animals. The type of thinking which helps one to get food and get along in life is a higher, not a lower, type of thinking, because this kind of thinking is always sounder. This type of thinking is usually called common sense. Now action without thinking may be foolish, but action without common sense is always disastrous. A nation with a robust common sense is not a nation that does no thinking, but rather has subjugated its thinking to its instinct for life and made it harmonious with it. Thinking of this type profits from the instinct for life, but is never against it. Too much thinking will bring about mankind's destruction. The English people think, too, but never allow themselves to be lost in their own thoughts and logical abstractions. That is the greatness of the English mind, and the reason for England's ability always to do the right thing at the right moment. It is also the reason for the English ability to fight the right war on the right side from the Spanish Armada to the Napoleonic wars, down to the Crimean War, the Great World War, and finally the present Italo-Abyssinian War. She always fought the right war and always called it by the wrong name by giving wrong reasons for it. That is the reason for England's amazing power and vitality. You may call it "muddling through" and inconsistency and hypocrisy. At the bottom of it all is the English robust common sense and a level-headed instinct for life.

In other words, the first law of nations as of individuals is the law of self-preservation, and the more a nation is able to adjust itself to changing circumstances, the sounder is its instinct for life, logic or no logic. "Consistency," Cicero says, "is the virtue of small minds." The English capacity for inconsistency is merely a sign of England's greatness.

Take the amazing British Empire, for example, till today still the greatest empire in the world. How did the English people do it? By the entire absence of logical reasoning. The greatness of the British Empire is based, you may say, on English sportsmanship, English endurance, English guts and the incorruptibility of English judges. All that is true, but there is a greater reason: the greatness of the British Empire is based on the English lack of cerebration; the lack of cerebration, or insufficient cerebration, produces moral conviction, and moral conviction produces moral strength. The British Empire is based on the Englishman being so cocksure of himself and his own superiority. No nation can go about conquering the world, unless it is quite sure of its "civilizing" mission. The moment, however, you begin to think and see something in the other nation or the other fellow and his ways, your moral con-

viction leaves you and your empire collapses. The British Empire still stands today because the Englishman still believes that his ways are the only correct ways, and he cannot tolerate anybody that does not conform to his standards. Thus the British Empire itself is based on an entirely illogical proposition. Its foundation actually dated back to the pirate days of its supreme struggle with the Spanish Empire in the times of Queen Elizabeth. But when pirates were necessary for the expansion of the British Empire, England was able to produce enough pirates to meet the situation, and glorified them. And later, when the industrial revolution called for colonial markets, she developed an instinct for founding colonies and made another astounding discovery of her "civilizing" influence, and an English poet, Rudyard Kipling, soon discovered the "white man's burden," and the consciousness of the white man's burden and England's civilizing influence helped the Englishmen through as nothing else would. Of course nothing could be more ridiculous, but nothing showed a sounder instinct for life.

Yet if you think that this is mere thickheadedness and there is nothing more to it than a merely negative virtue, consider the other side of the picture. Certainly the development of the British Empire was unprecedented in mankind's history, and certainly such an Empire could not be held together merely by an absence of logic. In the hands of any other nation, the British Empire would have fallen by its own weight, for the problem of holding an empire from Australia to Canada together would have taxed the most statesmanlike minds. Only the English mind could have solved it and it did so by inventing the British Commonwealth. The British Commonwealth is actually a League of Nations, with the difference that it is a League of Nations that really works. The English people are probably unaware that it is a League of Nations for they have the knack of doing a thing without knowing what it is. I don't know how the English people discovered the formula, but somehow or other they have discovered it or stumbled into it by their sheer commonsense and capacity for adjustment to realities.

Or take the case of the English language. The English language is today the nearest equivalent to an international language. How did the English people do it? By an equally absurd absence of logic, by the sheer stubbornness of the Englishman in refusing to speak anybody else's language. A Chinese speaks English when he is in England, speaks French when he is in France, and speaks German when he is in Germany. But an Englishman speaks only English everywhere. The English maxim is: When you are traveling in Rome, do exactly as you do at home. This is the only poem I ever composed in English. It is the most illogical thing, but again it has turned out to be the right thing, and English today has established itself as incontrovertibly the international language of the world. And so on in all the different aspects of her national life. Her Anglican Church is a theological anomaly. Theologically, it is a hodge-podge of Roman mutton with English sauce, a popish theology without a pope, merely the expression of the political sense of Henry VIII. It is absurd, it is ridiculously illogical and today it is hopelessly antiquated, but some eight years ago the English Parliament still refused to revise its prayer book. It is a supreme example of the English spirit of compromise. But it is a church that works and survives to this day.

The English constitution is another masterpiece of English patchwork, and yet in spite of its being a patchwork, it offers the English people a real guarantee of their civil rights. Her great universities offer another instance of a strange conglomeration of colleges without rhyme or reason. Oxford has 30 colleges and no one can tell you the reason why there must be 30 and not 29, and yet Oxford remains among the world's truest seats of learning.

The English form of government is in itself a contradiction, a monarchy in name and a democracy in reality, and somehow the English people do not feel any conflict in it. The English profess the greatest love for and loyalty to their king, and then proceed to limit the expenditures of the royal household

through their Parliament. Some day England will yet become a bolshevik state with the English king still on his throne, and under the leadership of a most die-hard conservative cabinet. England is already a socialist state today, taxing her aristocracy out of their landed estates and castles—without their calling it by that name, and England may in a short time turn laborite, but one feels the process will take place so smoothly that there will be no violent shakeup. I feel confident that the basis of English democracy will stand the strain of any crisis it may have to pass through, just by its sheer dogged sense of reality, and a kind of robust animal instinct for life. And so the English church works, the English language works, the English constitution and the antiquated English laws still work, and what is still more amazing, English democracy and English monarchy are working at the same time. That is what I call "amazing England."

And so there goes the Englishman with his umbrella and unashamed of his umbrella, refusing to talk any language but his own, demanding marmalade in an African jungle and unable to forgive his boy for not producing holly and a plum pudding in an African desert on Christmas eve, so sure of himself, so terribly cocksure of himself, and so terribly decent. There is an inevitability about his words and actions and gestures when he is not looking like a dumb persecuted animal. You could predict exactly what an Englishman would do even when he sneezes. He would take out his handkerchief—for he always has a handkerchief—and mutter something about the "beastly cold." And you could tell what is going on in his mind about Bovril and going home to have a hot footbath, all as inevitable as the sun is going to rise in the east the next morning. But you could not upset him. That cheekiness is not very lovely, but is very imposing. In fact, he has gone round conquering the world with that bluff and that cheekiness, and his success in doing so is his best justification.

For myself, I am rather intrigued by that cheekiness, the cheekiness of a man who thinks that any country is dog-gone and Godforsaken whose people do not take Bovril and do not produce an inevitable white handkerchief when the correct moment comes. One is lured to look behind that extremely brazen front and take a peep at his inner soul. For the Englishman is imposing just as solitude is imposing. A man who could sit all by himself at a club party and look damned comfortable is always imposing.

Of course there is something in it. His soul is not such bad stuff and his cheekiness is not just side and airs. For he is so very cocksure of his Post Office and his Bank of England. I sometimes feel that the Bank of England can never fall just because the English people believe so, that it can not be closed simply because "it isn't being done." The Bank of England is decent. So is the English Post Office. So is their Manufacturers' Life Assurance. So is the whole British Empire, all so decent, so inevitably decent. I am sure Confucius himself would have found England the ideal country to live in. He would be pleased with the London cop assisting old women across the street and he would be pleased to see children and minors addressing their elders with their "Yes sir's."

China, too, was a land that was terribly decent and terribly cocksure of itself. The Chinese people, too, were a people full of common sense at the expense of logic. If there was anything the Chinese were incapable of, it was scientific reasoning, which was totally absent from her literature. The Chinese mind thinks by leaps and starts, and it often arrives at the same truth, but by a quicker way, by sheer intuition. The Chinese mind had a knack of leaving out the unessentials and keeping a tight hold of the essentials of life. It had, above all, common sense and a wisdom of life; and it had humor, and it could face a logical inconsistency with a clear conscience and great complacency. Much of that wisdom and humor is now lost and that good sense which distinguished her ancient life is now decayed. The modern Chinese is a freak-

ish, peevish and neurasthenic individual, having lost his equitable temper through loss of self-confidence brought about by the misfortunes of China's national life in the last century to the humiliations of having to adjust herself to a new way of life.

But ancient China had common sense and a large measure of it. The most typical of Chinese thinkers was Confucius and the most typical of English thinkers was Dr. Johnson, both philosophers of common sense. If Confucius and Dr. Johnson had met, they would have smiled and understood each other perfectly. Both could not suffer fools gladly and both would put up with no nonsense. Both showed penetrating wisdom and a firm judgment. Both used the same rule-of-thumb method and both worked on a patchwork of ideas. And both had utter contempt for mere consistency. Mencius said of Confucius that he was the "Saint of Opportunists," and Confucius twice said of himself that with him "'yes' can do and 'no' also can do." And the strange thing was that the Chinese worshipped this great master because he was a "saint of opportunists"—which was no term of opprobrium in Chinese—because he understood life too profoundly to be merely consistent. Outwardly there was nothing to admire in this village schoolmaster. But the Chinese worshipped him, and not the more brilliant Chaungtze, nor the more logical Shang Yang, nor the more thorough-going Wang Anshih. There was nothing striking about Confucius except his love of commonplace, and nothing extraordinary about him except his platitudes. The only thing divine about him was his great humanity. As Dr. John C. Wu puts it, "he was too moral to be moralistic, too pure to be puritanical, too broadly human to be all-too-human, too consistently moderate to be immoderate even in the virtue of moderation." There could not be a more uninteresting character. It takes a Chinese people to worship such a man, as it takes an English people to worship Ramsay MacDonald, whose political life is a supreme effort to be inconsistent in the English manner, which is the grand manner. A laborite, MacDonald one day went up the steps of No. 10 Downing Street, sniffed its air, and felt happy. The world, he felt, was quite likeable and secure and he proceeded to do his best to make it more secure. Having come to such a stage, he had no more scruples about committing his laborite principles to the winds than Confucius would have. For Confucius would have approved of Ramsay MacDonald, as he would have approved of Dr. Johnson. Thus do the great spirits meet across the ages.

What Europe needs today and what the modern world needs is not more intellectual brilliance, but more life wisdom. The English have no logic, but have wisdom in the Chinese sense. One feels somehow that European life is more secure and the course of Europe's historical development is more steady for England's presence. There are so few things one can be sure about that it does one good to see a man who can be so sure of himself. The great difference is that there is more manliness in the English culture and more feminine cunning in the Chinese culture. China would do well to learn a little manliness from England, and England would do well to learn more moderation and mellow understanding of life and the art of living from the Chinese.

The true test of a civilization is not how you are able to conquer and to kill, but how you can get the greatest kick out of life, and for these humble arts of peace, like feeding birds and raising orchids and cooking mushrooms and being happy in simple surroundings, the West has still a lot to learn from China. Someone has said that the ideal life is to live in an English country house, engage a Chinese cook, marry a Japanese wife and take a French mistress. If we could all do that, we would have moved on in the arts of peace and could then afford to forget the arts of war. We would then know how to live and forget how to kill. You Christians may object to this scheme, but I believe such cooperation in the art of living will mark a new era of international understanding and goodwill and make the modern world safer to live in. It is a better program than what Mussolini is preparing for us. It is more convincing.

Trained dogs pursued frightened rabbits in coursing matches over grounds covering 130 acres, where now stand the Los Angeles Museum and several other public buildings. Sunday school pupils playing truant and an aroused teacher made this picture possible.

The Los Angeles Museum

By WILLIAM ALANSON BRYAN
Director Los Angeles Museum

(With illustrations from Los Angeles Museum photographs)

A LITTLE less than a third of a century ago a group of truant Sunday school boys set in motion a series of events that resulted ultimately in the founding of the Los Angeles Museum of History, Science and Art in Exposition Park.

Missed from their class by their teacher they were finally found by him among the Sunday spectators at a race track in old Agricultural Park where they were gleefully witnessing a "coursing match"—a form of sport wherein innocent rabbits are pursued by swift dogs trained for the purpose.

The intervening steps taken during the succeeding years which stopped Sunday coursing matches and resulted in the return to public use of the one hundred and thirty acres of land in Agricultural Park that it was found had been ingeniously diverted from public to private control as a race track; the rededication of the area in the heart of the city to the use of the public to form what is now known as Exposition Park and the development therein of the several important and varied recreational and cultural facilities including the State Exposition Building, the Los Angeles Armory, the famous sunken Rose Garden, the celebrated Olympic Stadium with a seating capacity of more than 125,000 persons and the by no means less significant Los Angeles Museum constitute a series of events of real significance in the life of a great city. This series of events, resulting largely from the persistent zeal of an

Trapped in the tar pits of La Brea, the sabre-tooth tiger, giant bear and bison left their bones for scientists to unearth thousands of years later, and reconstruct, as shown here in Hancock Park. A miniature diorama, opposite page, shows how Pleistocene Age animals were trapped in the tar.

aroused Sunday school teacher, is in brief the prehistory of a great civic enterprise of which the city, the county and the state are justly proud.

Since the Los Angeles Museum of History, Science and Art has just completed the celebration of the first quarter century of its existence, it pauses to point with satisfaction not only to the interesting history of its origin but to its varied achievements as a cultural, recreational and educational institution. At its twenty-fifth annual milestone the Institution looks hopefully forward to its future growth and expansion on the way towards its ultimate goal, namely, the building in Los Angeles of a thoroughly cosmopolitan assembly of collections and exhibits that will provide a museum in every way worthy of the great western city and community which without doubt is destined to be one of the outstanding cultural centers of the world.

The corner stone for the original Museum was laid December 17, 1910, to be followed by the formal opening of the red brick institution then known as the Museum of History, Science and Art, on October 16, 1913. The original building consisted of three wings radiating from a central entrance rotunda facing on the sunken garden in Exposition Park. The growth of the institution under the guiding hand of its first director, Mr. Frank S. Daggett, whose death occurred on April 4, 1920, was so rapid that the close of the great war saw the board of governors active in forwarding plans for further development of the institution.

The securing of an enlarged building site and the development of plans for the gradual transformation of the plant

into a great modern institution, including the original Museum building in such a manner that it would ultimately be absorbed into the larger plan, was among the first problems to be considered by the present director, immediately following his appointment as head of the Museum Department of the county on February 1, 1921.

Under the more appropriate name of the Los Angeles Museum of History, Science and Art, the institution within a few months secured from the state and the city, by lease, control of approximately 9½ acres in the northwest corner of Exposition Park. This provides for building purposes a rectangular area 750 feet long by 555 feet deep. The new building designed for the Board of Supervisors by the Allied Architects' Association in cooperation with the Director and Board of Governors when completed will cover thirteen times the ground area of the old original building and have approximately 30 acres of floor space available for exhibition purposes.

Two of the ultimate eight units of the new building have been completed. The first unit opened November 27, 1925, the second opened with a reception attended by 8,200 guests November 7, 1929. Together the two units provide over 50 exhibition halls, rooms and galleries with an exhibition floor space in excess of six acres and with more than 115,000 square feet of windows, skylights and glass exhibition cases.

Anticipated addition of the third unit of the building at no distant day will cemplete the south façade of the institution and will provide quarters for such much-needed facilities as the Museum auditorium, library, lecture rooms, Junior Museum, etc. Its completion will permit the placing of the stone jacket covering the rough concrete on the entire south or front façade at one time, thus assuring uniform color and texture of the facing material.

It is not too soon to predict that within a very few years through appropriations, augmented by private gifts and bequests, the Museum will be completed and equipped with exhibits occupying the entire eight units of the projected structure, Los Angeles Museum will then without doubt house one of the world's most interesting collections of objects illustrating the progress of civi-

lization, in all departments of history, science and art.

Over two score groups, clubs, associations, societies and organizations maintain more or less definite and cordial cooperative relations with the institution, while other organizations of like character await only the completion of more suitable library, meeting and lecture accommodations to join actively with the Museum in its ambitious desire to form for the people a great intellectual, cultural and recreational center in Los Angeles.

When the cornerstone of the Museum was laid, in 1910, the Museum did not possess a single object for Museum exhibition. The remarkable collections now on display are but a fraction of the material made available through generous gifts or long term loans from hundreds of friends of the Museum. The accession catalogue records gifts from 3,860 persons while the loan catalogue records the names of 1,732 friends of the Museum.

As the institution has grown, the Museum's collections and exhibits have been divided into several major sections to facilitate their care and general administration. The section with perhaps the widest and most varied interests is that of History, which embraces more than sixty collections pertaining to anthropology and the history of man and his social, cultural and governmental activities. The collections of the section as at present installed occupy about 30,000 square feet of floor space.

The vast number of objects and collections on display in the Science Section are in reality but a few examples selected from the scores of collections made up of thousands of exhibition, study and research specimens included in the scope of the division. These collections are constantly being added to by gifts from interested patrons, by exchange with other institutions and collectors, and by field expeditions, etc. More than ninety collections are included in the range of interest in this section, which as at present displayed occupies about 45,000 square feet of floor space on three exhibition floors of the building.

As time, funds and opportunity permit it is proposed to develop in the Art Section some seventy special art collections of a wide and varied nature. From the first, the cooperation of the Museum's friends has been solicited in the building up of these collections through gift, purchase and long-time loan of acceptable objects of art. The first quarter century of the life of the Museum has seen real progress made toward the institution's fixed desire to possess fairly representative examples of the painting, sculpture, etchings, applied arts, etc., of all the important art producing countries, but always placing especial emphasis on the achievements of our own American artists.

Starting with the original changing gallery and print room in 1910, the growth of the section can be measured in a way by the statement that more than twenty galleries, with 62,000 square feet of floor space, are devoted to the permanent and changing exhibitions of art objects. During the past fifteen years more than 400 art exhibitions have been assembled, displayed and dispersed by the Museum. These have ranged in size and importance from the small "one man show," often featuring the first works of budding local painters, sculptors, etchers, etc., as a compliment to their progress, to great international expositions of contemporary painting that in importance, scope and content have constituted exhibitions of the very first magnitude. From a single exhibition each month in 1910, the gallery schedule now averages 36 changing exhibitions each year.

The Museum has slowly developed its own research library, specializing in history, science and art. In addition to covering its field as a general reference library, special interest is taken in the development of more than 20 museum collections that group themselves about the Museum interest of the library.

The Junior Museum, forming a section of the Los Angeles Museum and devoted exclusively to the interests of children, was first opened with a children's reception January 21, 1927. Since its inception the facilities of the section have been constantly in use by school groups, boys' and girls' clubs and teachers, as well as thousands of others who have children or who have contact with

or interest in the youth of our community.

Completion of the second unit of the new museum in 1929 afforded opportunity for the beginning of the assembling of material in the Physical and Mechanical Science Section. A score of collections are now well represented, including objects in which science and invention are applied to the mechanical and physical appliances having such an important place in our everyday life. One of the most popular divisions of this section is devoted to the collection and preservation of objects pertaining to every phase of the making of motion pictures.

The Extensive Section first definitely established as a separate Museum activity was organized in August, 1926. through its extensive and growing collections the Museum extends its facilities to teachers, libraries, club lecturers and hundreds of others employing visual educational methods who, on application, are able to secure for a limited time for use outside the Museum, material similar to that displayed in all departments of the Museum. The section now has thousands of objects available illustrating the fine and applied arts, commerce, geography, history, literature, the natural sciences, etc.

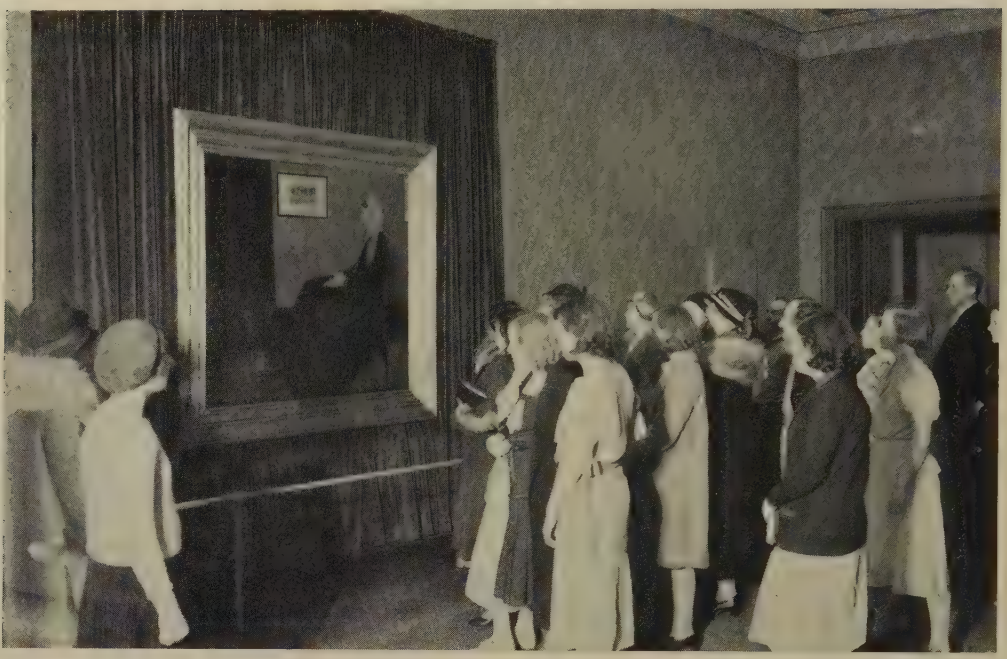
In the major section devoted to Music and the Theater the first installation of a definite gallery of musical instruments occurred in March, 1935, and marked the formal inauguration of the last of the several important sections of the Museum's inclusive exhibition program, as outlined in the institution's plan of development published in 1928. The section is devoted to the theater and theater arts and their various ramifications not elsewhere provided for. In this section it is the desire of the institution to develop a group of collections including historical instruments as well as examples illustrating the evolution of musical instruments in various countries. Other collections illustrating the theatrical life of Los Angeles, personal relics of actors, autograph copies of productions, etc., are included in the field covered by the Museum's interest in this subject, to which friends of the musical arts and the Museum are invited to contribute acceptable material for preservation or exhibition.

Like a number of legitimate fields of museum activity, the lecture, concert and docent service of the institution has been largely held in abeyance by reason of the lack of funds, personnel, and suitable lecture rooms and auditorium facilities. The completion of the third unit of the new structure, when funds will permit, will no doubt provide for the proper development of all the several contemplated urgently needed community services so appropriately associated with the work of a museum in a great population center.

While the Otis Art institution is a separate, self-contained division of the Museum Department and is conducted as such, it is an integral part of the art activities and facilities of the department as a whole. By the generous gift of his home, in 1918, General Harrison Gray Otis made it possible for the Museum to develop one of the leading art schools west of Chicago. With a slender beginning, the Institute has through the years steadily grown to where with a faculty of fourteen instructors it gives regular instruction to more than 500 students annually, while its student roll since 1918 totals more than 9000 names.

In 1923, Mr. G. Allan Hancock presented to the public by deed of gift, for park purposes, twenty acres of the region known at Rancho La Brea, fronting on Wilshire Boulevard west of La Brea Avenue. This is celebrated as being the field from which the Museum secured its collections of Pleistocene fossils now on display in Hancock Hall in the institution. The region was placed under Museum management and is being developed as one of the most spectacular natural parks in the world. It also forms one of the important sections of the Los Angeles Museum, being at once a Pleistocene park, a wild life refuge and a recreational and breathing space in a rapidly growing metropolitan area of the city.

While the Museum is celebrating the twenty-fifth anniversary of the laying



More than 100,000 persons visited Los Angeles Museum to see Whistler's portrait of his mother, a loan exhibition through the courtesy of the Louvre.

of the cornerstone of the great institution in Exposition Park it is fitting to mention, in passing, the Otis Art Institute and Hancock Park as forming very important landmarks in the course of the growth of the Museum Department of the government of Los Angeles county.

In reviewing the first quarter century of the Museum's history, it is obvious that it has steadily grown and developed along the general lines laid down by those instrumental in its organization. From its inception the institution has held an enviable place in the sincere affections of the people of the vast community that has grown up about it. While records of attendance may be made to mean little or much, it seems there is no better means of gauging the interest in the activities and the general use of a public institution. Although records of the attendance in early years were not complete, sufficient data is at hand to show that from the first the Museum has been a popular educational and recreational center. One thousand and sixty responded to cards of invitation at the first formal reception, on November 6, 1913. On several occasions during the last fifteen years, as, for example, at the opening of the first unit of the new museum, huge crowds have thronged through the exhibition halls and galleries. The largest single daily attendance on record occurred July 30, 1932, when by count 30,122 visitors entered the Museum. In recent years the annual attendance has exceeded a million visitors, while in 1932 the counted yearly attendance exceeded 1,300,000 persons.

Looking toward the future, and judging that future by the past, it seems reasonable to believe that the Los Angeles Museum as a growing institution is firmly established and assured as an enduring, secure and safe place in which to house for all time the treasures of art, history and science intended for the benefit and the enjoyment and the appreciation of untold millions who will year after year enter its portals. All have faith that succeeding generations will carry forward the development of the institution on the broad foundation laid down in the first quarter century of the Museum's history.

Penguin Politics Keyed to Cooperation

By THOMAS R. HENRY
in The Melbourne Herald

A COOPERATIVE SOCIETY based on the specialization of labor has been formed among the flightless penguins of Antarctica, according to Dr. Herbert Friedmann, noted American biologist. By communal consent, the birds have subdivided their daily round, each carrying out a specially allotted task!

Nurses, playground directors and policemen form part of the remarkable society which the flightless penguins have developed on the desolate Antarctic ice caps.

Evidence of all these, garnered from accounts of explorers and naturalists, is cited by Dr. Herbert Friedmann, Smithsonian Institution biologist, in a resume of the social developments of birds just issued in Clark University's handbook of social psychology.

In the scale of evolution the penguins are not highly advanced birds, but the inhospitality of their habitat apparently has necessitated coöperative behavior not met with elsewhere in bird life.

Most remarkable is the "society" of the Emperor penguin, which nests on the Antarctic ice caps and must care for its eggs and young under the most adverse climatic conditions.

One result is a "specialization of labor." Only about one hen penguin in 10 lays eggs. All the others, male and female, take care of them and of the newly hatched young. In the intense Antarctic cold it would be fatal to leave an egg unbrooded for a few minutes, while the mother went in search of food.

As soon as she gives any sign of leaving the nest, all the others fight among themselves for a chance to take her place, so intense are the instinctual drives developed among them for the preservation of the species. The same rivalry is shown for opportunities to care for the young birds.

Different, but equally notable, is the behavior of the closely related Adelie penguins. At first each pair takes care of its own eggs and young. A change comes when the chicks are about two weeks old and able to run around. The little ones begin to gather in "child groups."

Each aggregation of chicks is accompanied by a few adults who seem to have the positions of nurses or playground directors. The other old birds take to the water, which may be a half mile or more away, to find food for themselves and their little ones.

They return with food for all the group of little birds with which their own offspring are associated. Within such a group the food is divided equally among all the young. So far as is known, however, an adult never brings anything to any other group. The very existence of the birds under such adverse circumstances probably depends on this specialization of labor whereby a few are detailed to protect the young, leaving all the others free to obtain food.

Cock penguins sometimes have fierce fights, such as are common among many bird families. But among these alone, it appears from a description quoted by Dr. Friedmann from an English explorer, is there any effort on the part of other birds to stop such a battle when there is danger that one of the contestants will be injured. On several occasions other cocks have been seen to push themselves between the fighters in an evident effort to separate them.

These penguin pugilists fight in a manner peculiar to themselves, using both bill and flippers. One will try to hold an opponent with the bill and at

the same time strike him with the flippers.

The remarkable game of "group diving" among the Adelie penguins often has been described by explorers. A flock will stand on the edge of the ice, like a crowd of small boys at the swimming hole in spring, each trying to push somebody else in. They seem to take great pleasure in this sport, but it is probable that this is not a game at all.

A dreaded enemy of the birds is the sea leopard, one of the Antarctic species of seal. If one of these animals is lurking in the water it will probably reveal its presence by seizing the first penguin that takes the plunge. Hence the reluctance of all to take the first dive.

The most hated enemy of the penguins is the skua, a species of Antarctic gull. The adult penguin is more than a match for the enemy, which, however, sometimes seizes the helpless young. The hatred, however, is carried to a much greater extent than mere resistance. As the story is related by one Antarctic explorer quoted by Dr. Friedmann:

"The bitterness of the penguins' hatred for the skuas was shown in the neighborhood of our scrap heap. None of the food thrown on this heap was of any use to the penguins, but we noticed after a time that almost always there were one or more penguins there keeping guard against the skuas, trying to prevent them from getting the food, and never allowing them to light on the heap for more than a few seconds at a time.

"In fact, a constant feature of this heap was the sentry penguin, darting hither and thither, aiming savage pecks at the skuas, which would rise a yard or two out of reach; the penguin squalling in its anger at being unable to follow its enemy. It would imitate the flying motion with its flippers, seeming instinctively to attempt to mount into the air, as its remote ancestors doubtless did before their wings had adapted themselves solely to swimming.

"Close to the scrap heap there was a large knoll crowded with penguin nests, and it was this knoll which provided the sentries. Very rarely did one of these leave the heap until another came to relieve it as long as there were skuas about. When the skuas went, the penguins went, too. When the skuas returned, and without the lapse of a few seconds, a penguin would detach itself from the knoll and run to guard the heap. That there was some primitive understanding regarding this matter seems probable. The rest of the knoll seemed quite satisfied so long as one of their number remained on guard."

Penguin Oil; Mysterious Chemist; Derringdo and Devastation on the Lone Macquarie Antarctic Islands*

WHAT ARE THE USES of penguin oil? A quarter of a century ago, hardy New Zealand fishermen were venturing south to the bleakness of the Macquarie Islands, winning this strange product for a chemist. An echo of stormy fascination from those days lingers over this description of the things they saw and the dangers they faced.

About a thousand miles southwest of Bluff, in troubled waters well below the antarctic ice-line, lie the Macquarie Islands. They are deserted and rarely visited now, save perhaps by some passing whaler or South Pole expedition. Yet twenty-five years ago they were peopled, for six months of each year, by New Zealanders who worked up a fairly extensive and profitable penguin-oil and sealing industry.

Many people have never heard of the Macquaries, and few have visited them, for the trip is a dangerous one. For such an out-of-the-way group, these islands lay claim to a heavy list of wrecks.

This group is bleak and desolate in the extreme. From a distance the main island (which is only a few miles in extent, and which rises sharply in places to fifteen hundred feet) appears well wooded, but the closest investigation reveals only a long, tough, tussocky kind of grass which causes this deception.

There is not a shrub or tree on any one of the islands; but they more than make up for their lack of vegetation

* Unsigned article in The Fiji Times and Herald.

in other ways, for on these few acres there are literally millions of penguins, and thousands of albatrosses, seals, sea lions and sea elephants.

At first glance one would almost suppose that all the penguins in the world had made their homes here, for every flat and table-land is black with them!

Seals monopolize all the shores. Every shelf and ledge of rock on the high, jagged cliffs which surround all the isles of this group is the home of at least one seal family. And how they manage to climb to some of these seemingly impossible positions is a mystery. There are places where the sea surges 15 or 20 feet up and down sheer cliffs, yet on ledges just clear of the flying scud are perched colonies of seals or sea lions.

On the heights of the island the albatrosses make their homes. They prefer fairly flat places from which there is a sheer drop into the sea. Here on these elevated plains thousands of albatrosses lay their eggs. As soon as the young ones are hatched out they are fed on fish which has been partly digested and then regurgitated by the mother. On this fare the little albatrosses soon wax fat, and are quickly covered with a rich down, the quality of which is far superior to eiderdown.

As soon as the feathers proper begin to appear, a diet of raw fish is offered, and the youngsters soon change from balls of fluff to long-legged, long-winged young albatrosses. At this stage they make very good eating, too—better than chicken, according to the men who have spent months on the islands.

Into the life of the young albatross now comes his first trial, for at this stage he is forced to learn to swim. The mother bird leads him to the edge of the cliff and tries to entice him to plunge over with her. But he is frightened, and balks, and after several attempts the mother flies alone in search of the daily fish or two.

Soon she is back, and stands pecking at a fine fat fish. The young one sidles up to receive his usual share, but instantly receives a setback. There is no fish for him; not until he'll jump over the cliff and forage for himself!

For perhaps three or four days this procedure is repeated, and by this time the young albatross is desperately hungry. Once more he is enticed to the edge of the cliff. After more bullying, he finally makes the plunge, for the position is more or less "march, or die!"

For the first 50 feet he falls all legs and wings; then with a wild flutter he stays his downward progress, and finally lands on the water with scarcely a splash. Here he spends the next few days, feasting royally to make up for lost time, and learning from his mother all there is to know about flying.

By far the most numerous inhabitants of the Macquarie Islands, however, are the penguins, and they keep up a deafening clatter from morning till night. Underneath the penguins' skins are thick layers of fat, from which the oil is extracted, and for many years, in the latter part of last century and early in the 1900's, the penguin-oil industry caused the lonely Macquaries to be tenanted by men for about six months of each year.

Exactly what the oil was used for is not generally known, for the late Mr. Hatch, of Southland, who leased the Macquarie Islands from the Tasmanian Government, was a manufacturing chemist, and he used all the oil himself. The cost of fitting out sailing vessels to land the working parties on the islands and later to bring them back was considerable. The oil must have been valuable—and on several occasions the chemist's ships, together with their cargoes, were lost.

Early in October of each year a small sailing vessel would leave Bluff Harbor for the Macquaries with a cargo of oil casks, wire netting, provisions and fuel, and a shore party of seven or eight men. At that season the winds are usually favorable. The schooner would make the trip in two or three weeks, land the shore party, pick up any oil that had been left over from the previous season, and then sail away again, leaving the penguin-catchers marooned for six months.

For the first few days the work consisted of putting the plant in order; bringing up casks from the shore, cleaning out the digester, mending the races, and repairing the shack and cookhouse. Then the real job of securing the penguin oil was commenced.

Miniature sheep races and pens were

used for catching and holding the penguins. But when work was first started there was no need to drive them into these, for they were so numerous that they monopolized every foot of ground. Half a dozen or so of these penguin races led to a large main pen, which, in turn, opened into the killing race. This gave access to the digester, where the penguins were melted down to oil.

At least two men were employed in killing the penguins as they came down the race, and throwing them into the digester. Others were kept fully occupied in drawing off the oil into casks, and in driving penguins into the races and pens. This slaughter was kept up for several months, by which time most of the raw material was either reduced to oil or had fled to the more inaccessible parts of the islands. Attention was then turned to the seals and sea elephants, which also contain a fair amount of oil.

These were cut up and boiled down in "trying pots"—huge, overgrown ovens over an open fire built wherever a kill was made. But these creatures would soon become "educated," and after that the party would commence to get everything ready for shipping.

Winter would now be rapidly approaching, and the sailing vessel would again set out from Bluff to bring back from the Macquaries the shore party and their catch.

If, when the vessel reached the island, the weather was at all unsettled, she would creep around and lie under the lee until a chance came of slipping into the bay, and then the shipping of the oil would be hustled forward, the men working night and day. Sometimes the wind would come with a sudden bang, and the seas would be mountain high, in which no small vessel would stand a chance. If the anchors didn't hold, the game was up!

That was what happened to the *Jessie Nichol* in 1910. She had almost completed loading when she was caught in one of these sudden gales. After weathering it for three days, her cables parted and she was driven ashore. Such was the fury of the wind and water that the vessel was thrown several hundred yards above the highwater mark. The captain, mate and cook were drowned, and the rest of the crew, who were on land with the shore party when the gale blew up, were marooned until rescued by the Government steamer some months later.

After the *Jessie Nichol* had been wrecked, a small ketch, the *Clyde*, was purchased for the trade, but on her maiden voyage she went ashore in the same manner as the *Gratitude* and *Jessie Nichol*.

Then the base of operations was shifted from Bluff to Hobart; but not long after this Mr. Hatch died, and the strange penguin oil trade of the Macquarie Islands died with him.

Balboa Day, September 25

Inaugurated (1913) and Sponsored by the

PAN-PACIFIC UNION

Celebrated annually throughout Pacific countries to commemorate discovery of the Pacific Ocean on September 25, 1513, by Vasco Nunez de Balboa.

Membership in the Pan-Pacific Union

identifies you personally with this splendid celebration. If you are not already a member, send in your application now (see page 227) and receive your membership card forthwith.

Pearling Is Thirsty Business

"Dirty Water" or "Tucker Time" brings the doughty divers in to Thursday Island; consequent rousing makes things lively.

By HELEN JONES
in United Empire Magazine

AN SLAND of the South Seas! The pulses quicken in anticipation of the romance associated through the ages with such favored spots of the earth. The approach to Thursday Island certainly suggests the island of Dreams Come True.

After sailing under cloudless blue skies with sunlight sparkling on waves as far as the eye can see, we are dimly aware that the speck on the horizon is gradually taking shape. Soon are clearly outlined the tall graceful palms swaying gently in the breeze, while at their feet lies a white uneven line of cascading spray. Further inland the dense green vegetation is broken by splashes of vivid color and the white European buildings. Surely nowhere could there be found a more perfect setting for romance.

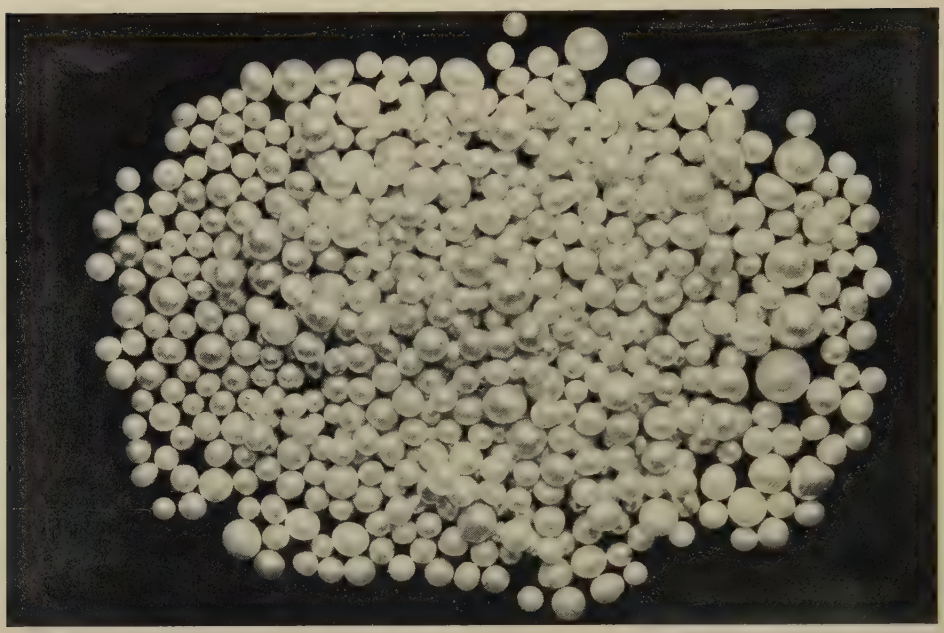
Slowly the ship slides alongside the jetty to be leisurely secured, while the scattered groups of colored people continue to stand about, showing very little interest in our arrival. Formalities over on board, passengers are allowed on shore.

Leaving the almost deserted wharf and walking along the main sandy street, one is aware that the cool sea breeze has gone, the air is hot and humid, footsteps drag, while thirst is the predominant sensation. The several hotels, which are merely glorified bars—not very glorified at that—did not attract us; instead we found a small shop where a notice was displayed, Homemade Lemonade. There we found an Englishwoman in charge who gave us huge slices of homemade cake to eat with the lemonade. Of herself she volunteered no information but listened eagerly to every word of our conversation. Talking of our travels, we said we hoped soon to be in England, and the wistful expression told plainly that for her at any rate, this was not the Island of Dreams Come True.

As it was Saturday afternoon, the shops were closed. To prove this the lower halves of the windows were boarded up rather in the manner we adopt when a building has been gutted by fire. Peering over the top of these boards, we were able to see the amazing jumble of goods displayed for sale. Tortoise-shell articles of doubtful quality, oddments of all sorts intended to attract the souvenir hunter, but so great was the disorder that one felt that so much as to move a packet of postcards would be enough to make the entire window display collapse. The houses built at irregular intervals along the sandy roads were equally dilapidated, but this in no way seemed to worry the occupants lounging against the doorposts or fanning themselves on the verandahs, who showed every appearance of contentment with their lot.

Standing apart on a little hill was the only beautiful building on the island, the Roman Catholic Church. The climb to this simple structure was well worth while, for to sit quietly within its peaceful walls was to refresh both mind and body. At the foot of the hill stood a school in charge of the Sister, a delightful smiling personality, who had lived on the island for 17 years, and loved both it and her work.

The school accommodated 130 pupils, the white, black, brown and yellow races all being represented. Surely a most difficult task attempting to teach in such a school where the methods used must necessarily vary tremendously with the different races. A difficult but fascinating job, and there indeed was the right person in the right place. One felt that her enthusiasm and genuine love of the work would overcome all obstacles. The school follows as far as possible the scheme of work laid down by the Australian education authorities, and is open to inspection by a Queensland inspector of schools, who usually



Count them, milady, let them in fancy run through your dainty fingers, revel in their chaste sheen, for they are dumb beauties and have naught to say of the tragedies connected with their getting.

makes a trip to the island twice a year. Each nationality has its educational peculiarities; the Cingalese being exceptionally quick at mental arithmetic, while the Chinese excel in drawing. Hanging on the walls were drawings done by the children which were certainly of a very high order.

Surely nowhere else in the world can be found representatives of so many countries in so small a space. Australian aboriginals are the true natives and there are still many of them to be seen in the streets and on the wharfs. They are easily recognized by their almost unbelievably black skins and mops of curly black hair. The Cingalese and Javanese on the island are mostly traders and shopkeepers.

Many of the Chinese and Japanese, about seven hundred of them, are engaged in pearl fishing. Most of the time they spend on the three hundred-odd neighboring islands, only visiting the main island at tucker time, that is when it is time to claim their next lot of rations, or at the time of "dirty water," that is, when the sea is rough and the water not clear enough for the shells to be seen easily. When the invasion of the main island by this seven hundred takes place the hotel bars and streets become crowded and noisy. The whole island wakes up, only to relapse, on their departure, into its usual slow-moving state.

Apart from the government officials there are very few whites on the island, and one feels that the story of the lives of these few would make interesting reading, living as they do on an island whose climate must in time sap the energies of the strongest.

Our time now up, we made our way to the almost deserted wharf, where getting our ship under way was the leisurely business we had by now learned to expect on the island.

Slowly moving away from the jetty, we last saw the island bathed in the glory of a sunset whose colors enhance all that is beautiful while softening all that disfigures the scene. Thus the memory retains a picture of an island almost perfect in its natural beauty, interwoven with the strange threads of the human lives being lived on this outpost of the British Empire.

Fishes of the American Northwest

A Catalogue of the Fishes of Washington and Oregon, With Distributional Records and a Bibliography

By Leonard P. Schultz and Allan C. DeLacy
School of Fisheries, University of Washington, Seattle, U. S. A.

*(Fourth installment, continued. Copies of issues containing first, second and third installments, while available, 75 cents a copy, postpaid to any address in the world.—*The Editors.*)*

Family 86. GOBIESOCIDAE Clingfishes

346. (2659). Caularchus maeandricus (Girard). Clingfish. Suckfish.

Lepadogaster reticulatus Girard, Proc. Acad. Nat. Sci. Phila., 7, 1854: 155, San Luis Obispo, Calif.; name preoccupied. *Lepadogaster maeandricus* Girard, Pac. R. R. Surv., 10, Pt. 4, Fishes, 1858: 130, San Luis Obispo, Calif. and the Farallons.

Caularchus maeandricus: Jordan and Gilbert 1881c, 1881f, 1882; Jordan and Starks 1895; Starks 1896, 1911; Kincaid 1919. *Gobiesox maeandricus:* Eigenmann and Eigenmann 1892. *Gobiesox reticulatus:* Jordan and Gilbert 1882; Jordan and Jouy 1882.

Range: British Columbia to Pt. Arguello, California. Marine. Common. No commercial value.

Records: Puget Sound Region*: Jordan and Gilbert 1881c, 1881f, 1882; Eigenmann and Eigenmann 1892; Jordan and Starks 1895; Kincaid 1919. Seattle*. Pt. Ludlow—Starks 1896. San Juan Islands*—Starks 1911.

Coast of Washington: Neah Bay*. Cape Flattery—Jordan and Gilbert 1882; Jordan and Jouy 1882. Cape Johnson*. La Push*. Reef opposite Quillayute Needles*.

Coast of Oregon: Cape Falcon*. Cape Foulweather*. Yaquina Head*. Ecola Rocks*. Cape Arago*.

Family 87. MOLIDAE Headfishes

347. (2172). Mola mola (Linnaeus). Ocean sunfish.

Tetrodon mola Linneaus, Syst. Nat. Ed. 10, 1758; 334, 412, Mediterranean.

Mola mola: Hubbs and Schultz 1929. *Orthogoriscus mola:* Kincaid 1919.

Range: Southeastern Alaska southward in temperate and tropical seas of Atlantic and Pacific. No commercial value.

Records: Puget Sound Region*: Kincaid 1919.

Coast of Washington: Destruction Is.*—Hubbs and Schultz 1929.

Coast of Oregon: Off Yaquina Head*.

ADDENDA TO PART I

During the period in which this catalogue has been in the process of publication numerous additional records and papers have come to our attention. We list these below and follow the method of punctuation used in the previous portions of this catalogue (see the introduction).

3. Entosphenus tridentatus: Off Cape Johnson, Washington, in fur seal stomach*—Schultz and Rafn 1936.

8. Apristurus brunneus: Saratoga Passage*, Off Everett, Washington.—DeLacy and Chapman 1935.

14. Squalus suckleyi: Puget Sound*—DeLacy and Chapman 1935.

17. Raja rhina: Puget Sound* and San Juan Is.*.—DeLacy and Chapman 1935.

18. Raja binoculata: Puget Sound* and San Juan Is.*—DeLacy and Chapman 1935.

23. Tetranarce californica: Port Susan*, and 300 miles N. W. of Cape Flattery*—DeLacy and Chapman 1935.

24. Hydrolagus colliei: Puget Sound*—De Lacy and Chapman 1935.

25. Acipenser transmontanus: Columbia R., Dalles, Snake R., Kettle Falls, Fort Colville, 46° 19′ N. near coast of Oregon—Lord 1866.

27. Clupea pallasii: San Juan Is.*—Shelford et al. 1935. *Malletta coerulia*: Puget Sound, Point (=Port) Discovery, Port Townsend,—Lord 1866.

Family 20. SALMONIDAE

Tyrell (1916) records salmon at "Spokane House," which was 10 mi. below Spokane.

32. Oncorhynchus gorbuscha: San Juan Is.*.—Shelford et al. 1935.

34. Oncorhynchus kisutch: S. Fk. Nooksack R.*. San Juan Is.*—Shelford et al 1935.

35. Oncorhynchus nerka: Silver Trout. Silver L.*, Whatcom Co. San Juan Is.*—Shelford et al 1935. Wallowa L.*. Rock Is. Dam*. *Salmo paucidens:* Osoyoos, Colville—Lord 1866.

36. Oncorhynchus tshawytscha: *Salmo quinnat, Salmo lycaodon:* Columbia R., mouth, Sumas, Kettle Falls, Oregon coasts—Lord 1866.

37. Salmo clarkii clarkii: Quinault R.*. Chehalis R.*. Port Orford L.*, Ore. Matthews Cr.*, L. Washington*—Merriman 1935.

41. Salmo gairdnerii gairdnerii: Penny Cr.*. Skookumchuck R.*, at Bucoda. Rock Is. Dam*. Wallowa L.* and Wallowa Cr.*. Sumas, Columbia R.—Lord 1866.

46. Salvelinus fontinalis: Penny Cr.*, Wash. Yakima*.

47. Salvelinus malma spectabilis: Wallowa Cr.*, Ore. *Fario lordii*: Skagit Flat—Lord 1866. *Fario stellatus, Salmo spectabilis:* Puget Sound drainage "Dwamish, Nesqually, Puyallup", Columbia R.,—Lord 1866.

48. Prosopium williamsoni: Humptulips R.*. *Coregonus quadrilateralis:* Kettle Falls—Lord 1866.

52. Thaleichthys pacificus: San Juan Is.*—Shelford et al. 1935. *Salmo (Mallotus) pacificus, Thaleichthys pacificus*: Puget Sound, Columbia R.—Lord 1866.

57. Hypomesus pretiosus: San Juan Is.*—Shelford et al. 1935. *Allosmerus attenuatus*: San Juan Is.—Shelford et al 1935. Cedar Cr.*, (47° 43′ N., 124° 25′ W.)—Thompson and Associates 1936.

Family 28. CATOSTOMIDAE

Tyrell (1916) reports "Carp" or "Mullets," which probably were suckers (*Catostomus*) from "Spokane House." This location is 10 mi. below Spokane, Wash.

67. Catostomus macrocheilus: Wallowa L.*. L. Wash.*—Lynch 1936.

68. Catostomus syncheilus: Wallowa L.*.

78. Mylocheilus caurinus: Rock Is. Dam*. L. Washington*—Schultz 1935a.

78a. Acrocheilus alutaceus X Mylocheilus caurinus: Silvies R.*—Schultz and Schaefer 1936.

79. Ptychocheilus oregonensis: Rock Is. Dam*. Snake R., at Robinette*. John Day R.*, at Dayville. Powder R.*, at Baker.

82. Richardsonius balteatus balteatus: Rock Is. Dam*. Skookumchuck R., at Bucoda*. Robinette*, Ore.

82a. Mylocheilus caurinus X Richardsonius balteatus balteatus (=*Cheonda cooperi*): Columbia R.*—Schultz and Schaefer 1936.

96a. Apocope oscula carringtoni X Richardsonius balteatus hydrophlox: Palouse R. at Hooper*, at Palouse*, above Colfax*, S. Fk. Palouse R. above Pullman*—Schultz and Schaefer 1936.

96b. Apocope oscula carringtoni X Richardsonius balteatus balteatus: Yakima R. near Ellensburg*, Powder R.*, Umatilla R. at Rieth*, Latah Cr. near Spokane*,—Schultz and Schaefer 1936.

99. Apocope umatilla: Rock Is. Dam*.

108. Alepisaurus ferox: Willapa Bay*.

110. Novumbra hubbsi: One half mile south of Elma, Washington*.

114. Theragra chalcogramma fucensis: Puget Sound, *Albatross* Station 4213 near Pt. Townsend*—Schultz and Welander 1935.

115. Microgadus proximus: *Albatross* Stations 4218, 4219, 4220 near Pt. Townsend*; Admiralty Is. (Whidby Is.)*; Yaquina Bay*—Schultz and Welander 1935.

116. Gadus macrocephalus: Puget Sound*—Schultz and Welander 1935. *Gadus morhua:* Puget Sound—Berg 1934. *Gadus:* Cape Flattery—Lord 1866.

120. Columbia transmontana: Yakima R. irrigation canal near Sunnyside*.

Family 40a. LAMPRIDAE. Moonfish

121a. (1354). Lampris regius (Bonnaterre). Opah. Moonfish.

Zeus regius Bonnaterre, Encycl. Meth. Ichth. 1788: 72, pl. 30. Torbay, England.

Range: Open seas of Atlantic, north to Newfoundland, and the Pacific north to off Yakutat*, Alaska (Bell and Kask 1936).

Records: Coast of Washington: 36 miles S. W. of Cape Flattery*, 48° 11′ N., 125° 36′ W., collected in summer 1935 by R. T. Smith, who reported a large school.

Coast of Oregon: 24 miles S., ½ W., off Cape Blanco*, 42° 28′ N., 124° 51′ W., collected by halibut schooner *Tacoma*.

123. Citharichthys stigmaeus: Hanning Bay, Montague Is., Alaska—Townsend 1935.

124. Atheresthes stomias: 48° 21′ N., 124° 52′ W.,—Norman 1934.

125. Hippoglossus stenolepis: Str. of Fuca—Norman 1934.

127. Hippoglossoides elassodon: San Juan Is.—Wismer and Swanson 1935. Puget Sound—Norman 1934.

128. Eopsetta jordani: Yaquina Bay—Norman 1934.

129. Psettichthys melanostictus: San Juan Is.—Shelford et al. 1935. Yaquina Bay—Norman 1934.

131. Pleuronichthys coenosus: San Juan Is.—Wismer and Swanson 1935. *Pleuronichthys nephelus:* San Juan Is.—Norman 1934.

132. Parophrys vetulus: Puget Sound and near Seattle—Norman 1934.

133. Platichthys stellatus rugosus: San Juan Is.*—Shelford et al. 1935. *Platichthys stellatus*: Puget Sound, and Yaquina Bay—Norman 1934.

134. Inopsetta ischyra: Puget Sound—Norman 1933. Seattle, and Holmes Harbor—Norman 1934.

135. LEPIDOPSETTA BILINEATA: Puget Sound—Norman 1934. San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

136. ISOPSETTA ISOLEPIS: Puget Sound—Norman 1934. Bellingham Bay*.

138. MICROSTOMUS PACIFICUS: San Juan Is.*—Norman 1934; Shelford et al. 1935.

139. GLYPTOCEPHALUS ZACHIRUS: 46° 09′ N., 124° 22′ W.—Norman 1934.

142. GASTEROSTEUS ACULEATUS ACULEATUS: San Juan Is.*—Shelford et al. 1935.

143. GASTEROSTEUS ACULEATUS MICROCEPHALUS. ? *Gasterosteus concinnus:* Sumas—Lord 1866. *Gasterosteus pugettii:* Puget Sound—Lord 1866.

144. AULORHYNCHUS FLAVIDUS. ? *Gasterosteus spinachia:* British Columbia to Oregon—Lord 1866.

145. SYNGNATHUS GRISEO-LINEATUS: San Juan Is.—Shelford et al. 1935.

146. ATHERINOPS AFFINIS OREGONIA: Tillamook*, Yaquina*, and Coos*, Bays, Ore.—Schultz 1933.

Family 55a. CARANGIDAE

157a. (in part 1302). TRACHURUS SYMMETRICUS (Ayres). Horse mackerel.

Caranx symmetricus Ayres, Proc. Calif. Acad. Nat. Sci., 1, 1855: 62, San Francisco Bay.
Trachurus symmetricus: Hart 1935.

RANGE: Vancouver Island (Hart 1935) to Galapagos Islands.

RECORDS: No specimen has been reported from this area although it has been taken 20 miles off Nootka, Vancouver Island, B.C. (Hart 1935), and commonly in California.

163. EUPOMOTIS GIBBOSUS: Offut L.*, Tenino.

175. SEBASTODES MELANOPS: San Juan Islands* Shelford et al. 1935.

194. SEBASTODES CAURINUS: San Juan Is.*—Shelford et al. 1935.

195. SEBASTODES MALIGER: San Juan Is.*—Shelford et al. 1935.

201. CHIROPSIS DECAGRAMMUS. *Hexagrammos (Chiropsis) decagrammus:* San Juan Is.*—Shelford et al. 1935.

206. OPHIODON ELONGATUS: San Juan Is.*—Shelford et al. 1935.

209. CHITONOTUS PUGETENSIS: San Juan Is.*—Wismer and Swanson 1935.

213. ICELINUS BOREALIS: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

224. HEMILEPIDOTUS HEMILEPIDOTUS: San Juan Is*.—Wismer and Swanson 1935.

226. ASPICOTTUS BISON: San Juan Is.*—Shelford et al. 1935.

227. BLEPSIAS CIRRHOSUS: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

228. NAUTICHTHYS OCULOFASCIATUS: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

230. COTTUS ASPER: Bainbridge Is.*. Quilcene R.*. Elma*, Washington. *Centridermichthys asper*: Puget Sound, Sumas,—Lord 1866.

231. COTTUS ALEUTICUS: Bainbridge Is.*.

234. COTTUS GULOSUS: Elma* and Chehalis R.*, Wash.

240. COTTUS MARGINATUS: Mill Cr.* above Walla Walla, Wash.

242. MYOXOCEPHALUS POLYACANTHOCEPHALUS: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

245. OLIGOCOTTUS MACULOSUS: San Juan Is.*—Shelford et al. 1935.

251. DASYCOTTUS SETIGER: San Juan Is.*—Wismer and Swanson 1935.

253. ASCELICHTHYS RHODORUS: San Juan Is.*—Shelford et al. 1935.

255. GILBERTIDIA SIGALUTES: San Juan Is.*—Shelford et al. 1935.

257. RHAMPHOCOTTUS RICHARDSONI: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

258. HYPSAGONUS QUADRICORNIS: San Juan Is.*—Wismer and Swanson 1935.

261. PALLASINA BARBATA AIX: San Juan Is.*—Shelford et al. 1935.

265. XENERETMUS TRIACANTHUS: San Juan Is.*—Wismer and Swanson 1935.

267. ASTEROTHECA ALASCANA: San Juan Is.*—Shelford et al. 1935.

270. ODONTOPYXIS TRISPINOSUS: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

273. EUMICROTREMUS ORBIS: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

282. LIPARIS FUCENSIS: San Juan Is.*—Shelford et al. 1935.

283. LIPARIS DENNYI. *Careliparis dennyi*: San Juan Is.*—Shelford et al. 1935.

284. LIPARIS PULCHELLUS: San Juan Is.*—Shelford et al. 1935.

300. TAENIOTOCA LATERALIS. Sapphire perch: Puget Sound,—Lord 1866.

303. RHINOGOBIOPS NICHOLSII: San Juan Is.*—Wismer and Swanson 1935.

307. CLEVELANDIA IOS: San Juan Is.*—Shelford et al. 1935.

310. RONQUILUS JORDANI: San Juan Is.*—Shelford et al. 1935.

316. PHOLIS ORNATUS: San Juan Is.*—Shelford et al. 1935; Wismer and Swanson 1935.

317. PHOLIS LAETUS: San Juan Is.*—Shelford et al. 1935.

320. BRYOSTEMMA DECORATUM: San Juan Is.*—Shelford et al. 1935.

328. LUMPENUS ANGUILLARIS: San Juan Is.*—Shelford et al. 1935.

329. LYCONECTES ALEUTENSIS: San Juan Is.*—Wismer and Swanson 1935.

335. LYCODOPSIS PACIFICUS: San Juan Is.*—Shelford et al. 1935.

338. LYCODES BREVIPES: San Juan Is.*—Shelford et al. 1935.

345. PORICHTHYS NOTATUS: San Juan Is.*—Shelford et al. 1935.

346. CAULARCHUS MAEANDRICUS: San Juan Is.* Shelford et al. 1935.

PART II. List of species whose occurrence in Washington and Oregon is doubtful.

Number and Species	Reasons for Doubt
12. Lamna nasus	We find no published record but it has been reported doubtfully from this locality by fishermen.
13. Cetorhinus maximus	No specimen has been reported from this area although it has been taken at Prince Rupert, B. C.
21. Raja trachura	No specimen has been reported from this area although it has been taken in Alaska and in California.
53. Spirinchus thaleichthys	We find no authentic records for Washington; those given probably were for *S. dilatus.* Schultz and Chapman (1934) identify the material in the U. S. N. M. from Oregon with some uncertainty as *S. dilatus.*
61. Cyclothone microdon	It has been reported from "Oregon to Panama" by Jordan, Evermann and Clark (1930), but we are unable to verify the Oregon record.
107. Myctophum crenulare	We are unable to verify the occurrence of this species in the Puget Sound region.
111. Cololabis saira	No specimen has been reported from this area although it has been taken off Vancouver Island and in California.
Footnotes 8 and 9. Eleginus gracilis (= navaga)	Although Evermann and Goldsborough (1907) give numerous records of the occurrence of this species south of the Alaskan Peninsula not one of these is valid as found by Schultz and Welander (1935) in their reexamination of the material in the U. S. N. M. They find the southern records were based on young specimens of *Microgadus, Theragra,* and *Gadus.*
117. Antimora microlepis	No specimen has been reported from this area although it has been taken off the Queen Charlotte Islands in deep water.
137. Limanda aspera	Fowler's (1923) record, "Wharf at Seattle" probably refers to a fish brought in from Alaska. Our extensive collecting indicates the absence of *Limanda* in this area.
141. Plectromus lugubris	No specimen has been reported from this area although it has been taken in Bering Sea and in California.
153. Benthodesmus atlanticus	No specimen has been reported from this area although it has been taken off Bentinck Island, near Victoria, B. C.
160. Micropterus dolomieu	Said to occur in this area but we have not been able to verify its presence.
164. Apomotis cyanellus	Doubtfully reported from southern Oregon.
188. Sebastodes rupestris	No specimen has been reported from this area although it has been taken in Alaska and in southern California.
190. Sebastodes rubrivinctus	No specimen has been reported from this area although it has been taken in British Columbia, and in southern California.
196. Sebastodes chrysomelas	Although Jordan, Evermann, and Clark (1930) and Walford (1931) give the range from Puget Sound to San Diego, we are unable to verify any record outside of California.
Footnote 14. Hexagrammos octogrammus	The record of this species having been taken at Port Angeles should be referred to *H. stelleri.* Our extensive collecting indicates the absence of *H. octogrammus* in Puget Sound.
Footnote 15. Alcidea thoburni (= Paricelinus thoburni)	No specimen has been reported from this area; the *Albatross* Station 3350 is in northern California.
223. Pterygiocottus macouni	No specimen has been reported from this area, the only known specimens were from off Vancouver Island, B. C.
235. Cottus punctulatus	The record of occurrence of this species in eastern Oregon and Washington by recent authors (Jordan, Evermann, and Clark) probably refers to *Cottus beldingii* or *Cottus gulosus.*
235. Cottus semiscaber	This species should be considered as a synonym of *Cottus punctulatus.* The records for this area are with little doubt based on specimens of *Cottus beldingii.*

Number and Species	Reasons for Doubt
259. Stellerina xyosterna	We are unable to verify the Oregon record by Jordan, Evermann, and Clark (1930).
285. Nectoliparis pelagicus	Not yet reported from this area although it has been taken to the northward and southward.
290. Paraliparis deani	Not yet reported from this area although it has been taken to the northward and southward.
291. Paraliparis dactylosus	Not yet reported from this area although it has been taken to the northward and southward.
292. Paraliparis ulochir	Not yet reported from this area although it has been taken to the northward and southward.
293. Rhinoliparis barbulifer	Not yet reported from this area although it has been taken to the northward and southward.
294. Rhinoliparis attenuatus	Not yet reported from this area although it has been taken to the northward and southward.
300. Embiotoca jacksoni	This species has been confused with *Taeniotoca lateralis* and probably all Puget Sound references to *Embiotoca jacksoni* refer to *T. lateralis*.
306. Quietula y-cauda	This species has been taken at Vancouver Island but not within the limits of Washington and Oregon.
Footnote 25. Allolumpenus hypochromus Hubbs and Schultz (1932a)	One specimen known, taken at Newcastle Island near Nanaimo, B. C.
334. Embryx crotalinus	Not yet recorded from this area but reported from the North Pacific and Santa Barbara Islands.
340. Lycogramma brunnea	Not yet recorded from this area but reported from Alaska and California.
341. Bothrocara mollis	Not yet recorded from this area but reported from Queen Charlotte Islands and southern California.

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Part IV. Index to Scientific Names of Fishes

Key to index numbers. Family numbers are in boldface type, as **14**. Species numbers are in Roman type, as 14. All numbers in parentheses, as (14), refer to the addenda. All numbers in italics refer to the list of species in Part II.

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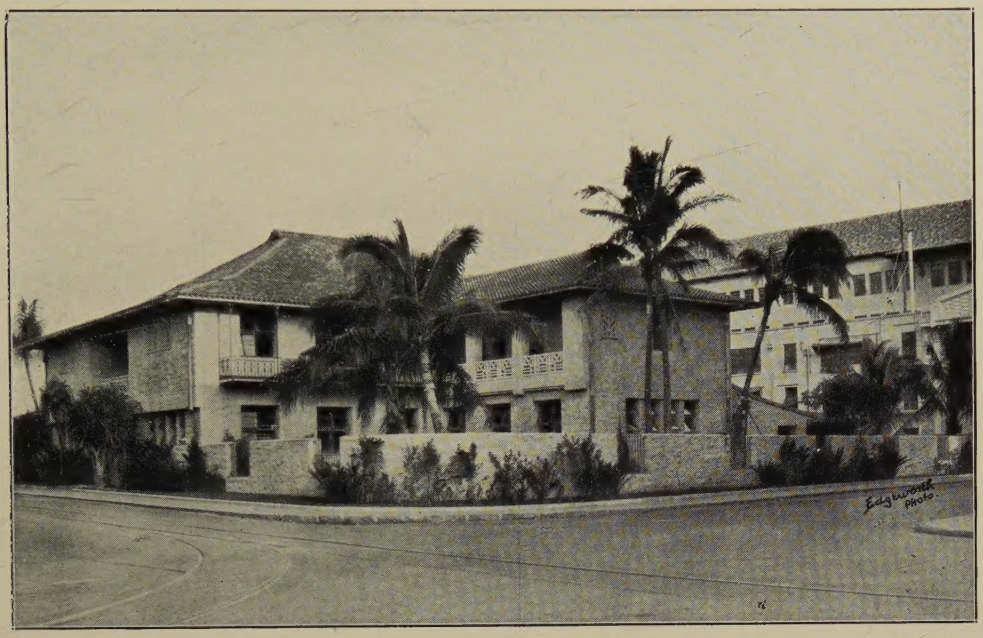

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